MARCH, 1954

WOOD and Wood Products

THE NATIONAL MANAGEMENT AND PRODUCTION MAGAZINE OF THE WOOD INDUSTRY

A Vance PUBLICATION

FEATURES IN THIS ISSUE

- How Production Gauges Cut Costs
- Log Handling, Debarking and Chipping
- Dry Kiln Operating Do's and Don'ts
- New Finishing Ideas and Equipment
- Letters—New Products—Trends—Current Prices

WOOD SALUTES

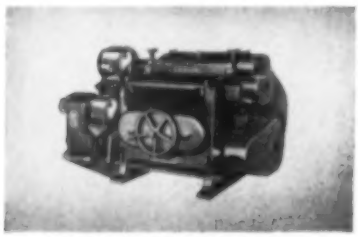
W. R. Warner

Whitney

The World's Finest Built

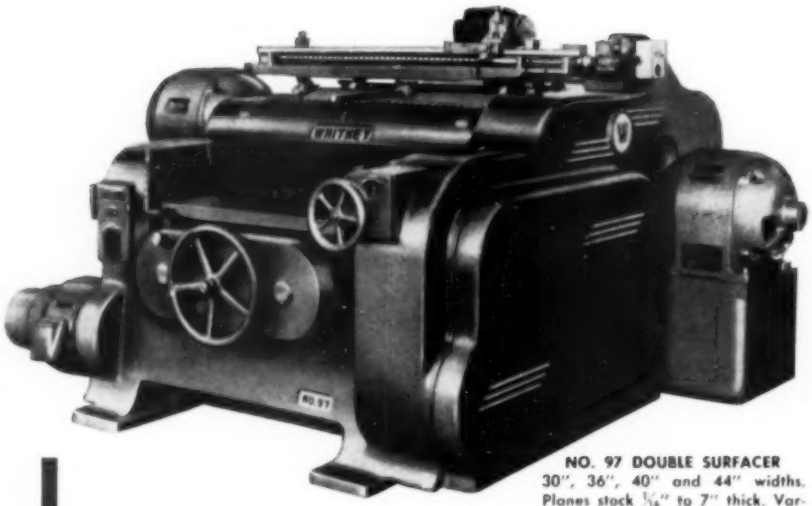
PRODUCTION SURFACERS

NO. 105 SINGLE SURFACER
24" width x 8". Variable Feed: 20 to 60 f.p.m. Cutterhead Motor: 7½ or 10 H.P.



NO. 32A SINGLE SURFACER
24" & 30" widths x 7¼", No. 29A—36", 40" & 44" widths. Variable Feed to 80 f.p.m.

NO. 37 SINGLE SURFACER
Extra Heavy Duty. Widths, 32", 40", 44" and 50". Variable Feed to 100 f.p.m.



NO. 97 DOUBLE SURFACER
30", 36", 40" and 44" widths. Planes stock 1/16" to 7" thick. Variable feed: 30 to 90 f.p.m.

The hundreds of Whitney Single and Double Surface Planers in the field today enjoy an enviable record of performance and service and attest to the fine quality of construction of Whitney planers. Today Whitney Single and Double Surfacers are the finest production planers ever built by Whitney, incorporating every time-tested and proven feature gained from more than 100 years of experience and know-how in fine planer construction.

What does this mean to you, a prospective planer purchaser? It means high quality, lowest cost planing, high production, low maintenance over the years and long, trouble-free service — the safest, soundest planer investment you can make today.

Write for bulletins. Ask for bulletin WPD3 for 97 Double Surfacer or bulletin WP53 for Single Surfacers.

In Our 117th Year

BAXTER D. WHITNEY & SON, Inc.
Planer Specialists for more than 100 years

PLANERS • SHAPERS • AUTOMATICS • VARIETY SAWS • BACK KNIFE LATHES

WINCHENDON, MASSACHUSETTS, U. S. A.

You get a Big extra at No extra cost when you buy FROST premium quality hardwoods

Every piece of Frost Premium Quality Hardwood provides highest cutting value with lowest possible waste. This factor is due to Frost's thorough knowledge of your woodworking problems, gained through almost a half-century of experience.

Every phase of your work is facilitated by Frost's up-to-the-minute methods of drying and seasoning. Stock reaches you thoroughly dried with a uniform texture, free from case hardening and checks. These qualities assure an affinity for glue and maximum speed through planers.

Frost's uniform grading necessitates little sorting of lumber which minimizes handling time and affords maximum cuttings per hour.

For the best in hardwoods, specify Frost Premium Quality.

Frost

FOREST PRODUCTS DIVISION OF OLIN INDUSTRIES, INC.

SHREVEPORT • LOUISIANA

Producers of

FROST GOLDEN PINE
FLOORING • HARDWOODS
TREATED MATERIALS
FROSTBRAND FURNITURE

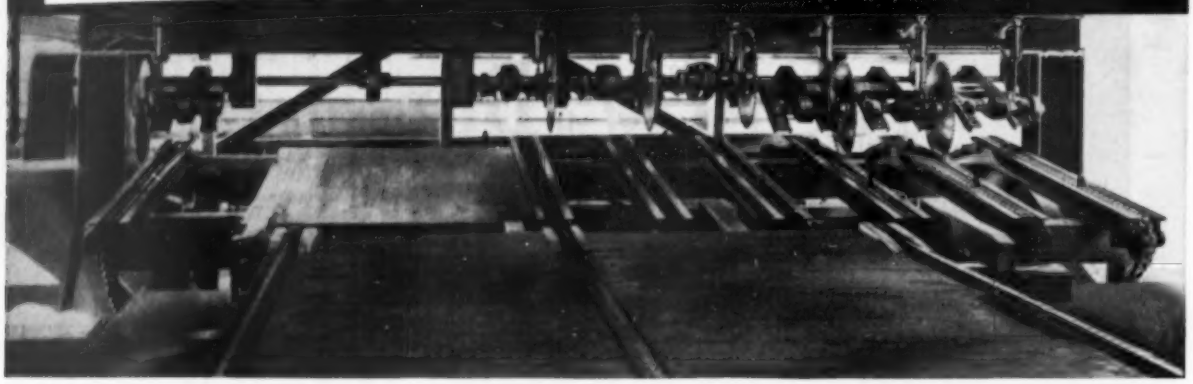
Olin

WHELAND GIVES YOU

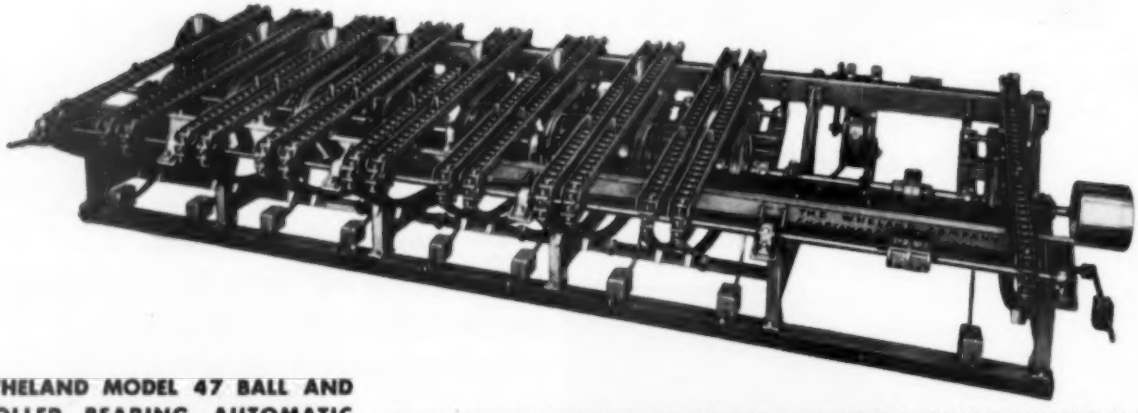
ACCURATE TRIMMING EVERY TIME

FAST AND AT LOWEST COST

Many a mill lost money because of lumber trimmed a little off specifications. With Wheland multiple saw trimmers you get accurately trimmed lumber every time. These trimmers are made for your individual requirements. Drop saw or overhead. Mechanically or air operated. Most mills can pay for these trimmers out of savings. On request, our experienced men will show you how much a Wheland trimmer can save in your operation.



WHELAND MODEL 48 BALL AND ROLLER BEARING OVERHEAD, AIR OPERATED, DROP SAW TRIMMER operating at Williams-McKeithan Lumber Company, Pollocksville, North Carolina. V-belt drive to saw arbors. Requires no special foundations or overhead supports.



WHELAND MODEL 47 BALL AND ROLLER BEARING AUTOMATIC DROP SAW TRIMMER. Entirely self-contained. Iron and steel construction. Completely equipped with ball and roller bearings throughout. All bearings sealed against dust and grit, pressure grease lubricated. V-belt drive to saw arbors. Self-contained feed works. Saws drop automatically. There are several ways to operate saws with complete adaptability to your special needs.

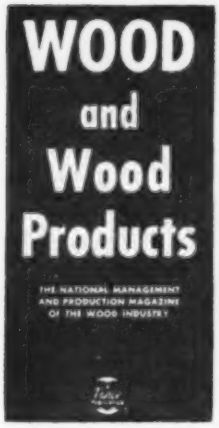
BULLETIN AND INDIVIDUAL ENGINEERING RECOMMENDATIONS ON REQUEST. WRITE DEPT. W-6.

The WHELAND COMPANY

MANUFACTURERS OF COMPLETE SAWMILLS AND AUXILLARY MACHINERY • CIRCULAR SAWMILLS—HEAVY, PORTABLE • BAND SAWMILLS • EDGERS AND TRIMMERS
TRANSMISSION AND CONVEYOR MACHINERY

CHATTANOOGA, TENNESSEE

FOR OVER 80 YEARS . . . . . THE FOREMOST NAME IN SAWMILL EQUIPMENT



MARCH, 1954

Vol. 59, No. 3

Herbert A. Vance ..... Publisher
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(advertisement)

Weed Wonderment:

Me: "Doctor, I'm worried about my smoking."

Doc: "Don't be. Lots of people smoke."

Me: "Yeah, but doctor I inhale."

Doc: "Yeah, but lots of people inhale."

Me: "Yeah, but doctor I don't exhale."

* * *

First chorus girl: "Didja hear, Gloria's getting married."

Second chorus girl: "No! I didn't even know she was pregnant."

* * *

My mother-in-law lives a stone's throw from me. I know cuz she's always throwing stones at me. But just wait'll next year. I'm gonna move a stone's throw from her.

* * *

Say—Sitka Spruce—we told you we had it. All who stocked it sold it and turned casual customers into lifelong friends. There's more magic available. Call MAUK—Evergreen 0300—whisper Sitka Spruce and see what happens.

* * *

Simple Celia says every wife oughtta know if she henpecks her husband she's likely to find him listening to some other chick.

* * *

"Drive off a cliff, cabby, I've decided to commit suicide."

* * *

Joe: "At poker I win one night and lose the next."

Flo: "Why don't you play just every other night?

* * *

Sudden thought. You know if Shakespeare were alive he'd still be considered a very remarkable man—he'd be more than 350 years old.

* * *

MAUK Seattle Lumber Co.
Seattle 5, Washington

The C. A. MAUK Lumber Co.
Toledo 4, Ohio

DIEHL #99 MULTI-RIP SAW—Newest in the Diehl Rip Saw line, the #99 and #990 feature unitized construction of arbor motor, arbor assembly, and table on the frame. Result is greater rigidity with minimized vibration. There are no adjustments of table or arbor to work loose—set-up time and maintenance are minimized. Shown in high-speed production at General Electric plant in Wabash, Ind., the Diehl #99 Multi-Rip is designed to use carbide-tipped blades—incorporates eight powered feed rolls—and provides eight feed speeds in two ranges, from 50 to 180 fpm or faster if desired. Maximum stock thickness of #99 is 3⅛" with 14" blade; and 4⅛" with 16" blade on #990. Special attachment permits fast, accurate throat-plate cutting.

DIEHL #33 RIP SAW—Most outstanding Rip Saw in the popular price class, the Diehl #33 is shown working at Burnet-Binford Lumber Co., Indianapolis, Ind. Ideal for such general purpose work as boxes, crates, staves and cooperage, it offers standard feed speeds of 70 and 140 fpm. Higher speeds available. Maximum stock thickness is 3¼"; minimum, ⅛".

Undercut Rip Saw Design Proved for Faster, Safer Production

In plant after plant throughout the woodworking industry, the *undercut* design—featured on Diehl Straight Line Glue Joint Rip Saws—is paying off in *more feet per minute*, with *more precision* and with *greater safety* for the operator.

Providing a down-pressure effect, the undercut design reduces possibility of kick-back. And combined with the massive, precision construction of the entire machine, the undercut feature is producing glue joints *direct from the saw.*

Diehl Straight Line Glue Joint Rip Saws are available in *five* models—the Diehl #33, #55, #750; and #99, #990 Multi-Rip. For *complete* information, see your nearby Diehl Representative—or write direct to the Diehl factory.

DIEHL #55 RIP SAW—Shown preparing stock for Globe Furniture Co., Ltd.—furniture manufacturer of Waterloo, Ontario, Canada—the #55 Straight Line Glue Joint Rip Saw offers the small plant a low-cost, high-production machine. Stock thickness ranges from ⅛" to 4". Standard features are direct motor drive, 7-roll pressure bar, and centralized controls.

DIEHL #750 RIP SAW—The famous #750 is designed for high speeds on heavy-duty, precision production. Produces either straight or hollow glue joints, at speeds up to 250 fpm on stock from ⅛" to 4¼" thickness. Eight pressure rolls hold stock down firmly throughout the machine. The versatile Diehl #750 is shown cutting hard board at Memphis Furniture Co., Memphis, Tenn.

Standard of Comparison in the Woodworking Industry

Diehl

THE G. M. DIEHL MACHINE WORKS, INC.
Wabash, Indiana, U. S. A.

See DIEHL at Booths 1-3, 22-23, Section D, the Woodworkers Industry Show, Grand Rapids, May 5-6-7

MARCH, 1954

WOOD and Wood Products

VOL. 59, NO. 3

INDUSTRY NEWS . . . . . AND TRENDS

LUMBER

Orders Exceed Production

Lumber shipments of 511 mills reporting to the National Lumber Trade Barometer were 9.4% above production for the week ending January 30. In the same week new orders of these mills were 10% above production. Unfilled orders of the reporting mills amounted to 34% of stocks. For the reporting softwood mills unfilled orders were equivalent to 21 days' production at the current rate, and gross stocks were equivalent to 60 days' production.

For the year to date, shipments of reporting identical mills were 1.9% above production; new orders were 6.1% above production.

Douglas Fir Orders Hit Peak

Douglas fir sawmills, which did more business during 1953 than for any year in the past quarter century, have noted a new spurt of orders in recent works, leading to optimism among West Coast producers that 1954 demand will equal that of the recent boom building years.

According to Harris E. Smith, secretary of the West Coast Lumbermen's Association, mills in the rain belt of western Oregon and Washington had orders for 10,171,657,000 bd. ft. in 1953, which topped record 1951 by 65 million feet, and was 137 million feet above 1952. Production for 1953 was 10,282,898,000 bd. ft., also above last year, but short of the all-time record cut of 10,416,432,000 feet established in 1951. Shipments were also high, totaling 10,243,396,000 bd. ft., topping 1952, but just short of record setting 1951.

Automatic Methods Cut Costs

The trend toward greater automatic operation as a means of cutting costs and meeting hard competition is beginning to make itself felt in the lumber and wood using industry.

Notable is the $14 million all-electric mill being built by Kirby Lumber Corp. at Silsbee in East Texas. The new mill, scheduled to be completed early next year, will replace four obsolete mills in that area and match their former production. More important, J. K. Herndon, vice-president, asserts both labor and production costs will be substantially lower.

From the West Coast, an M&M Woodworking Co. spokesman says he is convinced that greater use of automatic equipment will keep his company's operating costs on a downward trend. Cutting of waste is another approach gaining favor. New low priced debarking machines are being considered by a number of smaller lumber mills which previously haven't been able to afford them. The lure is an extra 5% to 6% more lumber per log. Greater use of chippers and finding new products for slabs and edgings which formerly went into the burner is also being explored by smaller operators.

Site of FPRS National Meeting and Industry Show May 5-7

The Grand Rapids, Mich., Civic Auditorium will be the scene May 5-7 of the 8th annual National Meeting of the Forest Products Research Society and the concurrent 1954 Woodworkers Industry Show. All FPRS technical sessions and subject matter committee meetings will be held here, with space remaining for a 30,000 sq. ft. area in which will be shown nearly $1 million worth of latest woodworking machinery, much of it in actual operation. (See Page 38 for details.)

CONSTRUCTION

Builders Optimistic for '54

Concensus of a cross-section of the nation's leading builders surveyed by the National Association of Home Builders is one of optimism about the 1954 business outlook. Builders generally plan to maintain or increase the near-record construction volume they attained in 1953.

Of the 273 reporting builders, 159, or 58%, said they planned to build more home this year than they did in 1953, while 53, or 19%, said they would produce the same volume and 61, or 23%, said they would erect fewer homes this year. Their combined construction planned for 1954 totaled 28,692 units, 15% more than the 24,854 units actually erected by the 273 builders last year. A generally steady to slightly higher price trend was indicated.

Public and private outlays for new

construction last year reached a record $34.8 billion—7% higher than in 1952.

RESEARCH

Forest Pest Battle Launched

A mighty effort to get the upper hand over destructive timber insects and diseases is shaping up in Washington and Oregon, where the Northwest Forest Pest Action Committee has started organizing the most intensive pest research program ever undertaken in the West.

The committee, first of its kind in America and representing 21 public and private organizations and agencies identified with forests and forest industries, has had a sub-committee at work for a year studying pest research needs. Headed by C. W. Richen, chief forester of Crown Zellerbach Corp., this group recently brought in a report calling for a major cooperative research program.

The report pin-points research needs, names targets for immediate action and calls on industries, colleges, research foundations, chemical firms, spraying and dusting concerns and others to undertake study projects. It urges research to improve aerial and ground survey methods to detect and judge bug outbreaks; to improve chemical control methods; to complete biological studies of species not yet fully investigated; to learn more about natural control by predators, parasites and diseases; to expand forest management practices as a control method; to develop knowledge of tree resistance to insect attacks and develop insect-resistant trees.

"Pests are costing the people of Washington and Oregon two billion feet of timber a year," said E. L. Kolbe, Portland committee chairman. "We are behind in pest research and have been battling one emergency after another." In the past several years, $3.5 million have been spent on control of the spruce budworm alone. Many other pests are as bad, amounting to a situation where the pests are telling forest managers and owners what to do. This is the problem the committee is determined to lick.

Wood Pole Tests Launched

A 2-year research program expected to save industrial users millions of dollars in pole costs by establishing more precisely the breaking strength of wood poles has been started by the American Society for Testing Materials. A $150,000 fund is being raised to finance the work being conducted at the U. S. Forest Products Laboratory, Madison, Wis., under the supervision of R. P. A. Johnson.

Tests will be made on about 600 full-size poles of different species, and on some 15,000 small specimens taken from the poles to determine the quality of clear wood. The research is designed to replace existing inadequate and conflicting data on pole strength with a solid basis of technical information for revised specifications. Objectives are more accurate pole design standards, assurance of getting poles that are strong enough at reasonable cost, new data on effect of preservatives on pole strength, accurate relationships among different species, and substantial savings to buyers and processors.

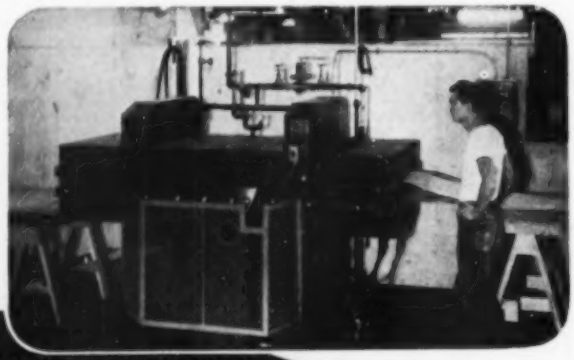
First step will be to correlate crib and machine tests, controlling and recording such major variables as density, species, major defects and moisture content, and averaging uncontrollable variables by testing a sufficient number of poles. Second step is to determine basic strength of untreated poles for various species, and third step will consist of tests of treated poles.

HARDBOARD

New Hardboards Introduced

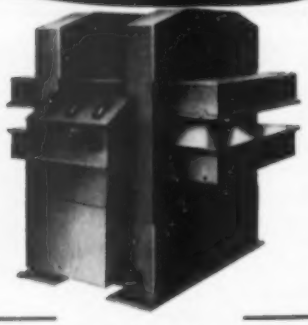
A line of versatile hardboards, manufactured by a newly developed, flexible process, went into full scale

PHOTO AT RIGHT courtesy of the Mengel Company, Louisville, Ky., illustrates a VB 38x100 — 2 opening press being used for flattening veneer.



ELIMINATE WASTE and REJECTS—

Flatten Veneer with a . . . . VB hot press



The new modern design of VB HOT PRESSES is shown above. It features an all enclosed frame, all welded platens and an Automatic control panel. Available in single or multi-opening models in sizes from 38-50 and up.

Flattening Veneer to insure full utilization and maintain its quality is only one of the many operations that can be performed on an automatic VB Hot Press. This versatile press can be used for such operations as:

- plywood
- fine veneered panels
- flush doors & millwork
- veneered stiles & rails
- 2 ply crotch veneer
- plastic table & desk tops
- formed plywood
- laminated musical instrument fronts and backs

and many others.

Why not investigate the advantages of a VB Hot Press for your plant?

WRITE TODAY

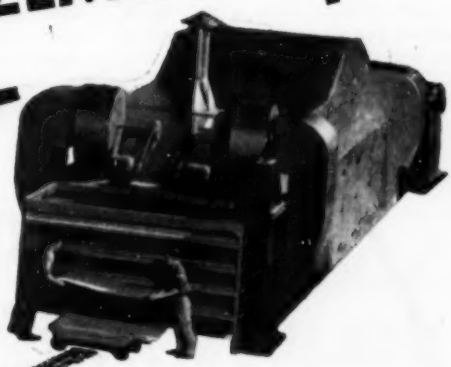
send for descriptive literature and free book'et on gluing techniques.

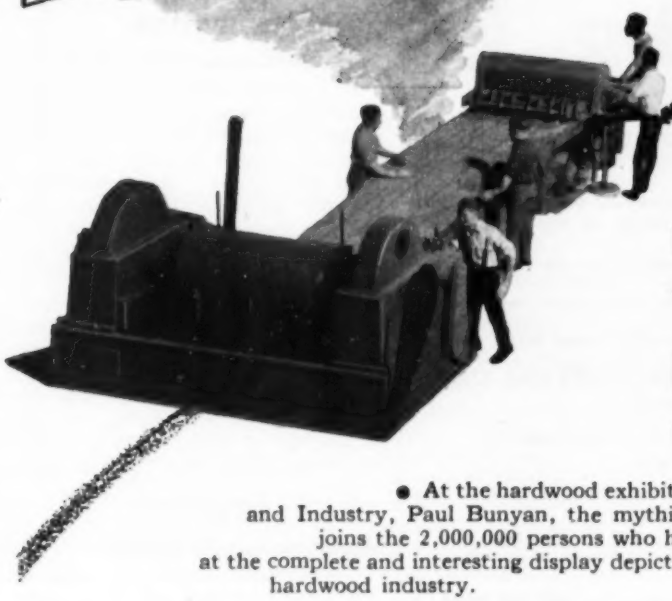
V.B Berthelsen ENGINEERING WORKS, INC.

P. O. BOX 1423 • LOCKPORT ROAD • JOLIET, ILLINOIS

Paul Bunyan...

GAZES IN AMAZEMENT





at modern veneer processing equipment

• At the hardwood exhibit in Chicago's Museum of Science and Industry, Paul Bunyan, the mythical giant lumberman, joins the 2,000,000 persons who have already gazed in amazement at the complete and interesting display depicting the growth and scope of the hardwood industry.

Prominent among the many intriguing and amazing displays are working models showing both lumber and plywood being produced, which include models of Coe veneer machines. This is indeed apropos in view of the important part played by Coe since 1852 in this vast and ever growing industry.

This exhibit which represents an investment of $400,000 is serving to annually acquaint millions of persons with the beauty and utility of hardwoods in many and different applications. Of great educational value to the public at large, it is a "must" for anyone in the woodworking industry when in Chicago.

The COE MFG. Company
PAINESVILLE, OHIO

LATHES • CLIPPERS • DRYERS • KNIFE GRINDERS

production recently in Weyerhaeuser Timber Co.'s Klamath Falls, Ore., branch plant. These hardboards are the first to be made by the dry process from defibrator whole-wood fibers.

They are described as entirely different in raw material, performance and characteristics from anything previously known in the forest products field. Basic raw material is white fir which occurs abundantly on Weyerhaeuser's western pine area tree farms in Oregon.

In manufacturing hardboard, the company literally takes a tree apart, processes the ultimate whole-wood fibers, and reconstitutes them into a new form of wood which then has a host of added qualities. Asplund defibrators reduce the white fir chips into fiber, unchanged from its natural condition in the tree, by rubbing the chips apart under an atmosphere of moderate steam pressure. Additives can be introduced for tailored uses during the defibrating process.

After defibration, the fiber is continuously felted from air suspension, then hot pressed into boards, humidified to prevent warpage, trimmed and cut to specified size. Types being made are standard, treated and tailored-to-use. The latter can be designed to take various stresses and pressed to different densities and surfaces for bending, die-cutting, or for various finishes, depending upon specific requirements.

JAMESTOWN
Specials

SPECIALLY ENGINEERED cut-to-size KITCHEN CABINET DOORS—Always have been and still are GUARANTEED FOR QUALITY.

BAL-CO-PLY non-warping door stock—engineered for cabinets and furniture parts that require a practically WARP PROOF plywood.

JAMESTOWN A GRADE BIRCH—skillfully matched for grain and color.

JAMESTOWN NORTHERN RED OAK—we select and cut our own veneers.

JAMESTOWN CHAUTAUQUA COUNTY NATURAL Hard White Maple.

. . . also WALNUT, MAHOGANY, RIFT and PLAIN WHITE OAK, CHERRY as well as other NATIVE and EXOTIC woods.

any of the above in all standard thicknesses with lumber, fir or veneer core.

PRIDE & PLYWOOD

Commodities of all kinds are offered at prices ranging from the sublime to the ridiculous. Plywood is no different than other commodities in this respect.

We feel that the consuming public still wants the BEST and takes real PRIDE in ownership of the BEST.

JAMESTOWN VENEER and PLYWOOD CORP.
Jamestown 2, N. Y.

JAMESTOWN
HOT PRESSED RESIN BONDED
Multiplied Strength
PLYWOOD

minimum prices may be had on quantities of 100 of size and kind, in truckload or carload lots.

PLYWOOD

U. S. Plywood Pegs Price

A pledge to make no increase in price for the remainder of 1954 on Douglas fir plywood has been made by U. S. Plywood Corp., largest producer in the industry. Two other Western companies, Vancouver Plywood and Evans Products Co., set up guarantees good through the first quarter, April 1.

S. W. Antoville, U. S. Plywood president, stated that the present price of $85 per 1,000 sq. ft. would be held throughout the year, "short of contingencies beyond control," for the "benefit of the many industries using plywood and the 30,000 lumber dealers marketing it to contractors and the fast-growing do-it-yourself market."

EDUCATION

Statistics Course Announced

During the March 24-June 4 spring quarter, the Institute of Statistics, University of North Carolina, will sponsor a special program of course work, lectures and seminars on statistics for research engineers, physicists and chemists. Primary objective is to provide an opportunity for industrial research workers to acquire a working knowledge of modern statistical concepts and techniques. Efficient design of experiments and analysis of data will be emphasized.

Regular college credit will be granted. For further information write to Institute of Statistics, North Carolina State College, Box 5457, Raleigh.

FORESTRY

Alabama Forests Increase

Forests cover 20,756,200 acres of Alabama's total land area, an increase of nearly 2 million acres since the middle 1930's, according to a survey just completed by the Southern Forest Experiment Station, New Orleans. Sawtimber amounts to 38.2 billion bd. ft.

Total cubic volume of all merchantable trees has increased 1% since the initial timber census 17 years ago. Hardwood volume has increased 6%, but softwood volume (mainly pine) has deceased 5%. For sawtimber trees alone, volume has dropped 17% in softwoods, 5% in hardwoods. The survey also disclosed that Alabama's timber resource supports some 3,000 sawmills, seven wood pulp mills and more than 100 miscellaneous wood using plants.

REDCO

Cemented Carbide Helical
SHAPER...MOULDER JOINTER HEADS

- **easier—freer shearing action**
- **90% less tearouts**
- **sharp cutting edges last up to 40 times longer**
- **eliminate many sanding operations**

As part of Redco's Planned Tooling for Production Program—coordinated use of Redco Carbide Tipped Tools and Tool Grinder—these Redco Carbide Tipped Helical Cutter Heads are important. They have what it takes—by design and construction—to pare your operating costs and produce finer work. Redco Helical Shaper Heads save production hours in doing tough jobs like cutting formica, teak, phenolic bound laminates and plywoods. And the Helical Moulder and Jointer Heads do finer, faster work and reduce sanding operations to a minimum.

Centrifugal cast aluminum bodies with cemented carbide helical blades, dynetric balancing, pressure testing are all important factors in making every Redco Helical Cutter Head a money-making tool. Remember too, these Redco Heads can be sharpened quickly and expertly by using the Redco Tool Grinder as part of *your* Planned Tooling for Production Program.

Write today for the information-packed Redco Bulletin that gives the facts on the Program . . . you'll be glad you did!

HERE'S WHAT *USERS* SAY ABOUT REDCO HELICAL CUTTERS

Erie, Pa., user writes—Redco Helical Cutter Heads save on set-up—have run over 1 year without sharpening.

North Carolina furniture frame manufacturer reports on working hard maple—Redco Helical Cutter Heads run approximately 375 hours between sharpenings—save sandpaper—reduce lifted grain or chip-outs.

Redco Helical Moulder Head sharpened only every 4 weeks when used on a Moulder cutting 12,000 to 15,000 feet per 8-hour shift—running 16 hours per day.

REDCO

TOOL DIVISION
RED LION CABINET CO., RED LION 1, PA.

Douglas Fir Seed Crop Light

Foresters in need of five tons of Douglas fir seed a year for use in Washington and Oregon nurseries and for direct seeding from helicopters are keeping fingers crossed for a bumper seed crop in 1954. Not only was 1953 such a light seed year that there was little more than enough to feed the rodents and insects, but Pacific Northwest forests haven't produced a good crop since 1949.

As a result, artificial reforestation in Washington and Oregon is threatened with a temporary decrease in its rapid momentum of the last decade. Generally, good seed years in Douglas fir occur about three times in 10 years, and foresters store seed for future use, but the current protracted poor crops have nearly exhausted reserves.

Canada Likes Tree Crop Plan

Concerned about long range timber supply, Canadian foresters are looking with favor on what might be described as a mathematical formula developed in U. S. southern pine forests for determining the ideal time for the cropping of any tree. The theory reportedly can be applied to any silvicultural system.

Basically, trees should be harvested at any age when they will produce maximum annual revenue on a sustained basis. The formula for determining this age takes into consideration alternative earning power of capital invested, average net revenue from forest land, continuity of production and fixed factor of land.

Mando Offers Woodlot Advice

More dollars for tree farmers and more wood for forest products may be expected to result from a new service being offered for the first time to small woodlot owners and contractors by the Minnesota and Ontario Paper Co. Officially called Mando's Timber Management Advisory Service, it will be available to farmers in northern Minnesota.

The company has 20 trained foresters ready to explain benefits of the service and to provide active assistance in woodlot management. Sustained yield forestry on private forest lands is advocated nationally as a means of improving general economic well-being and stretching our wood supply.

Kentucky Forests Increasing

Forests which cover 45% of Kentucky are growing about 60% more timber each year than is being cut, according to a report of the U. S. Department of Agriculture. The state has about 25 billion board feet of sawtimber and is growing more than a billion board feet each year, but the sawtimber volume could be doubled or tripled under better management and protection, the report states.

New Trends IN PACKAGE STAPLING

. . . call for speed and versatility

Here's how —

Write for detailed data on your particular requirements.

EXAMPLE—The Combination Berry Box Machine (below) has revolutionized the berry box business . . . now, more than 90 percent of all berry boxes are produced on this St. Joe Equipment.

- ST. JOE MACHINES, INC., pioneered the use of staplers . . . since 1877.
- ST. JOE STAPLERS have set higher records for production than any other similar equipment in the field.
- ST. JOE'S exclusive features and simplified design afford greater efficiency and less maintenance.

OUR 77th YEAR

St. Joe Machines, Inc.

ST JOSEPH, MICHIGAN

COMING EVENTS

March 4-5: Eastern Canadian Section Meeting, FPRS, Chateau Laurior, Ottawa, Canada.

March 4-5; Southern Hardwood Producers, Inc., annual meeting, Roosevelt Hotel, New Orleans.

March 25: 35th annual meeting, Southern Hardwood Traffic Association, Hotel Peabody, Memphis, Tenn.

April 5-7; Southern Pine Association, 39th annual meeting, Roosevelt Hotel, New Orleans.

April 29-30; Northeast Meeting, FPRS, Williamsport, Pa.

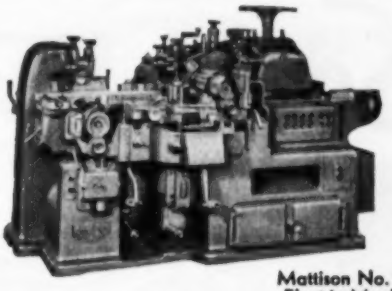
May 5-7: National Meeting, FPRS, and Woodworkers Industry Show, Grand Rapids, Mich.

May 21-22: Redwood Region Logging Conference, Ukiah, Calif.

FOR YOUR MACHINE ROOM YOU WANT THE *Latest*

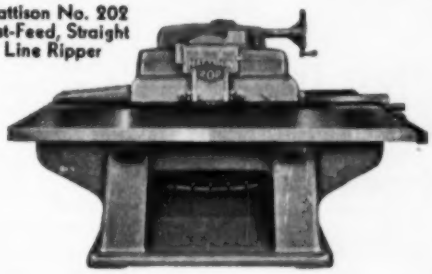
To be out in front you will want the newest and latest equipment for your machine room. The best will be none too good. We will be glad to show you what Modern Mattison Machines can mean to you in terms of greater volume, reduced costs, and better and more accurate work. As the first step write for new free circulars.

Write Today for Free Circulars

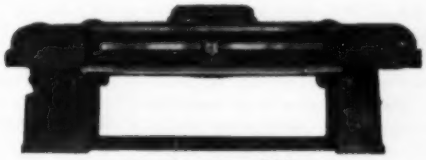


Mattison No. 276
Electric Moulder

Mattison No. 202
Fast-Feed, Straight
Line Ripper



Mattison No. 57F
Automatic Shaping Lathe



Mattison No. 303
Automatic stroke
sander

Mattison Machine Works, Rockford, Illinois
Please sent for Circulars on: Moulders.....Rip Saw.....
Turning Lathes.....Sanders—Power Stroke.....Hand
Lever.....Hand Block.....Variety.....Edge.....

Name.....Title.....
Firm.....
Street.....
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MATTISON MACHINE WORKS
ROCKFORD · ILLINOIS

See these machines in operation at Grand Rapids Machinery Show, May 5-6-7. YOU'RE INVITED!

LAUCKS Sentry
PAT. APPLIED FOR

CONTINUOUS MOISTURE DETECTOR

The Most Important Recent Development in the Woodworking Field

QUICK FACTS

- 100% inspection of moving stock—only material within a desired moisture range passes the SENTRY.
- Fully automatic. Continuous control. Accurate through wide moisture range.
- Eliminates fall-downs due to moisture.
- Dryer schedules may be adjusted to peak performance.
- Assures better quality control.

Laucks SENTRY has successfully solved the costly moisture problems in the furniture, plywood, veneer, lumber and other industries. SENTRY-equipped plants, many with multiple installations, report thousands of dollars saved through the elimination of fall-downs and hot press blowouts. Plywood and veneer plants have increased dryer production up to 25%. Furniture manufacturers state that Laucks SENTRY has paid for itself in a matter of weeks. This new, electronic control can be installed at any point on your production line . . . gives production line control, 24 hours a day. Write TODAY for additional information

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Painesville, Ohio

A PRODUCT OF LAUCKS LABORATORIES, INC.
Seattle, Washington

LETTERS to the EDITOR

The Battle for Quality

Editor, WOOD & WOOD PRODUCTS:

The writer is very pleased and flattered at being "saluted" in January WOOD & WOOD PRODUCTS, whether he deserves same or not.

Regarding the editorial on Page 19, the theme of this editorial seems to be completely appropriate at this time in the lumber business as well as other industries, and I agree with the prediction that business in general will continue good this year.

One of the problems in pulling our industry up by its bootstraps is the fact that such a large segment of our industry is not sold on the merit of shipping good lumber, properly handled, seasoned, manufactured, and graded. For example, if one part of our industry is shipping a quality product it is difficult if not impossible for that part of the industry to realize proper benefits if another one-third to one-half of the industry is shipping an inferior product, apparently by choice. This is a situation to which we have been giving a lot of thought and discussion but have found no answer.

—Tom De Weese,
A. De Weese Lumber Co., Inc.,
Philadelphia, Miss.

Likes "Era of Persuasion"

Editor, WOOD & WOOD PRODUCTS:

Congratulations on your editorial, "The 'Era of Persuasion' Is Here." (*See January issue.*) Our idea agrees with yours that that is what is necessary to be done.

—A. Fletcher Marsh,
Marsh & Truman Lumber Co.,
Chicago, Ill.

Educating the Architect

Editor, WOOD & WOOD PRODUCTS:

Please advise our cost on a quantity of reprints of the article by Thomas D. Perry, "Should Cores Be Lumber or All-Veneer?" in your October 1953 issue. We plan to hand them out to architects in our area of distribution.

The article gives us a coherent discussion of this diversity of opinions. We, in the industry, are aware of the factors involved but find it difficult to spend enough time with a busy architect pointing out the advantages and disadvantages of the various cores.

—P. O. Co., Okla.

Metallizing Wood

Editor, WOOD & WOOD PRODUCTS:

We have been informed that an interesting article was published in WOOD & WOOD PRODUCTS, February 1952, regarding the covering of wood with a thin metal film.

We have a French translation of this article which we have communicated to our members, some of whom have shown a great interest and expressed the wish to get further information regarding the equipment and tools needed.

—L. L., Brussels, Belgium.

Seeks Chipboard Unit Data

Editor, WOOD & WOOD PRODUCTS:

The short article published in the December issue of your very fine magazine, entitled "New Chipboard Unit at Berkline," interests us considerably. We would certainly appreciate any further information concerning the production capabilities of this equipment . . . It would also interest us to know, if possible, the means of heat application, whether steam, electric hot plate, or high-frequency dielectric.

—H. K., Wash

Horizontal Boring Machine

Editor, WOOD & WOOD PRODUCTS:

In the January issue, you list an inquiry received from a company who is interested in a horizontal boring machine. We also are interested in a machine of this type and we'll appreciate any information which you can obtain for us.

—H. W. D., Mich.

Wants Wood Wardrobe

Editor, WOOD & WOOD PRODUCTS:

We have been endeavoring to find a wardrobe made of wood. Local office supply houses do not stock any such item, nor do the catalogs they carry list them. It occurs to us that your library may be able to put us in touch with a manufacturer who can supply us either a catalog or an illustrated sheet so that we can see if wooden wardrobes are still available.

—D. H. R., Pa.

Casting Resins

Editor, WOOD & WOOD PRODUCTS:

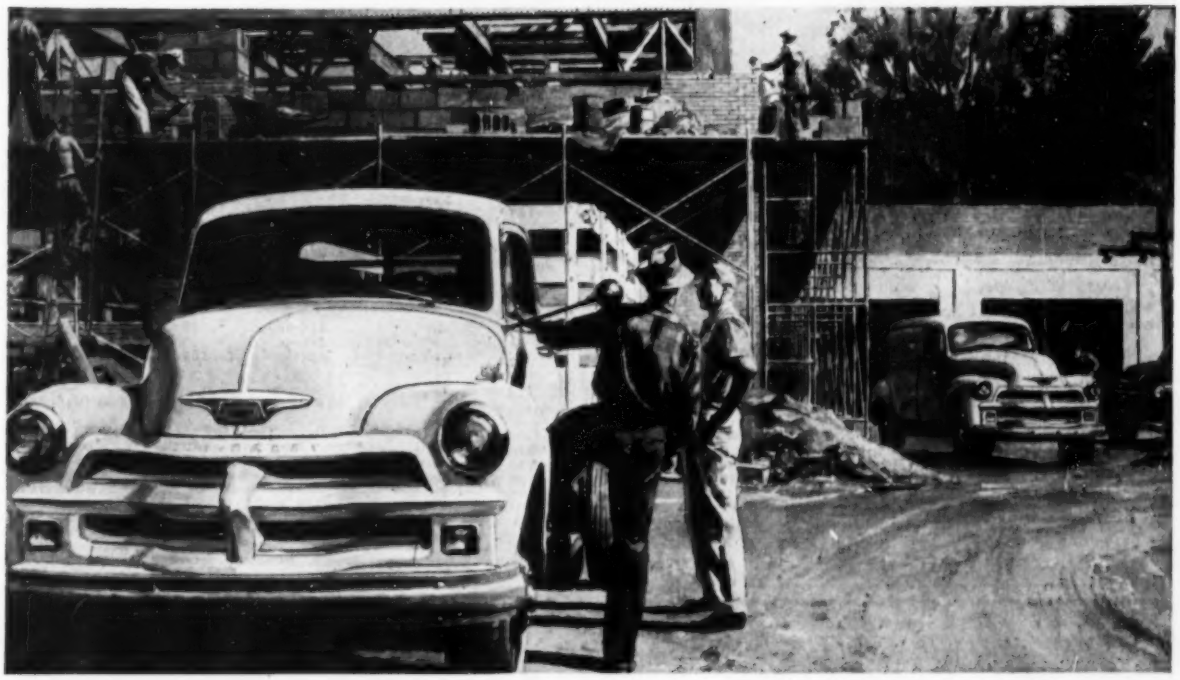
In your October, 1953, issue of WOOD & WOOD PRODUCTS I find several inquiries regarding a casting resin used to cast sawdust into various products.

Since all of these inquiries are asking you where the manufacturer of this casting resin may be located, I wonder if I can impose on you for this same information. I assure you it will be greatly appreciated.

—V. T. L., Calif.

NEW CHEVROLET TRUCKS

do more work per *day* . . . more work per *dollar* on every type of hauling or delivery job!



Time and money are the two most important factors in any trucking job—and the new Chevrolet trucks for '54 are built to save more of *both!*

THEY SAVE YOU TIME *ALL THE TIME*

Whether you deliver door-to-door or haul state-to-state, new Chevrolet trucks will speed up your schedules. They bring you new hour-saving engine power—greatly increased acceleration and hill-climbing ability. You save time with greater safety . . . and *without* increasing your maximum road speeds. In traffic or on delivery routes, new truck Hydra-Matic transmission* saves time, and saves driving effort as well. It's the last word in no-shift truck driving.

THEY SAVE YOU MONEY IN *EVERY* WAY

Along with increased power, these great new trucks bring you increased operating economy. You enjoy hefty gasoline savings in every model, thanks to new high-compression performance. In addition, you save on upkeep and maintenance. That's because you get extra strength and stamina in drive line and chassis. There are heavier axle shafts in 2-ton models, newly designed clutches and stronger frames in all models.

See your Chevrolet dealer for all the facts about the "savingest" Chevrolet Advance-Design trucks ever built! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

MOST TRUSTWORTHY TRUCKS ON ANY JOB! CHEVROLET

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

THREE GREAT ENGINES—The new "Jobmaster 261" engine* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. **NEW TRUCK HYDRA-MATIC TRANSMISSION***—offered on ½-, ¾- and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH**—improved-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES**—on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **NEW RIDE CONTROL SEAT***—eliminates backrubbing. **NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give increased load space. **COMFORTMASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance.

**Optional at extra cost. Ride Control Seat is available on all cab models, "Jobmaster 261" engine on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.*

CURRENT LUMBER PRICES

These prices are made available by George Land, publisher of the weekly *Hardwood Market Report*, in his copyrighted issue of February 6, 1954. For the entire list, contact Mr. Land, Box 5716, Memphis 4, Tenn.

Note: Each price change from preceding issue is marked by an asterisk (*).

SOUTHERN HARDWOODS

F.O.B. mills—Texas and Louisiana area. Estimate of present mill point average market price, to consuming trade on band-sawn Southern Hardwoods in carload quantities, random widths and lengths, rough air dried and graded in accordance with NHLA rules on inspection. Prices in dollars per M ft. On straight cars of upper bracket grades premiums are frequently being paid.

ASH—FIRM TEXTURE

	FAS	No. 1C	No. 2C
4/4-in.	160	120	60*
6/4-in.	170	135	66*
8/4-in.	190	150	80

BASSWOOD

4/4-in.	160	135	83
6/4-in.	170	135	87
8/4-in.	180	145	90

BEECH

4/4-in.	125	100	55
6/4-in.	140	110	60
8/4-in.	167	137	72

CHERRY

	FAS	No. 1C	No. 2C
4/4-in.	220	150	90
6/4-in.	240	170	95
8/4-in.	260	180	100

RED GUM—PLAIN

4/4-in.	205	150	75
6/4-in.	230	170	75

RED GUM—QUARTERED

4/4-in.	125	102*	50*
6/4-in.	135*	115*	53*
6/4-in.	152*	127*	

SAP GUM—PLAIN

4/4-in.	125	105	53
6/4-in.	138	118	55
8/4-in.	155	130	

HACKBERRY

4/4-in.	117	97	67
6/4-in.	132	112	75
8/4-in.	135	112	75

SOFT MAPLE—WHAD

4/4-in.	130	110	67
6/4-in.	145	120	77
8/4-in.	165	125	80

SOFT MAPLE—WHND

4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in.	135	110	80

RED OAK—PLAIN

4/4-in.	175	100	72
6/4-in.	190	130	
8/4-in.	200	140	

WHITE OAK—PLAIN

4/4-in.	185	110	72
6/4-in.	200	140	
8/4-in.	205	145	

PECAN

4/4-in.	112	92	58
6/4-in.	130	110	60
8/4-in.	155	130	65

POPLAR—PLAIN

	FAS	S&S	No. 1C
4/4-in.	170	160	130
6/4-in.	185	175	140
8/4-in.	205	195	150

SYCAMORE—PLAIN

	FAS	No. 1C	No. 2C
4/4-in.	115	95	60
6/4-in.	127	107	62

TUPELO—PLAIN
TUP TEXTURE—DEEP SWAMP

4/4-in.	122*	102*	50*
6/4-in.	135*	114*	53*
8/4-in.	152*	127*	

WILLOW

6/4-in.	143	123	67
4/4-in.	135	115	58*
8/4-in.	150	125	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area. Estimate of present mill point average market prices on sales to consuming trade on band-sawn Appalachian Hardwoods in carload quantities, random widths and lengths, rough air dried and graded in accordance with NHLA rules on inspection. Prices in dollars per M ft. On straight cars upper bracket grades premiums are frequently being paid.

Speed up Glue Room Output

with the New, Quick-setting

COLPRES 10-B UREA-RESIN GLUE

Only 10 minutes from clamping to machining at room temperature —

Plus WATER RESISTANCE

Strong, durable joints in hardwoods, softwoods, and plastic laminates. Requires no special equipment. Increases clamp carrier output; cuts fabricating costs.

Send today for FREE SAMPLE and full information on how and where to use COLPRES 10-B.

TIMBER ENGINEERING COMPANY Dept. WWP-541
1319 18th Street, N.W., Washington 6, D. C.

Please send FREE SAMPLE of COLPRES 10-B and descriptive technical bulletin.

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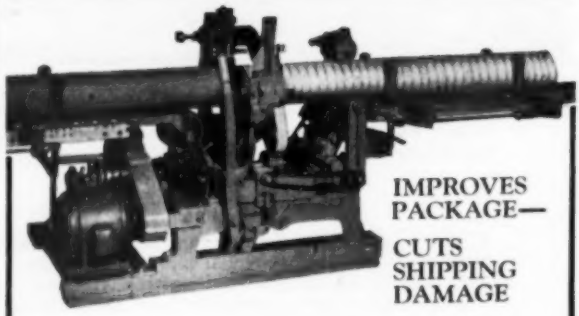
ADDRESS.....

CITY.....ZONE.....STATE.....



IMPROVES PACKAGE—
CUTS SHIPPING DAMAGE

Use the PIERCE Model D-S Wrapping Machine and Save Time-Labor-Material

The Pierce Model D-S spiral wrapping machine is a production machine that wraps packaged lumber, including flooring, trim, slats, dimension stock and molding, in seconds. Each layer of paper is automatically glued to the preceding layer. The tight binding prevents any internal movement of individual pieces during shipment—and the customer gets clean, protected stock. Model D-S available on sale or lease terms.

Write for specifications • Samples wrapped, no charge

PIERCE WRAPPING MACHINE COMPANY

Builders of production wrapping machinery since 1910

1100 E. 31st Street La Grange Park, Ill.

TOUGH ASH

	FAS	FIF	No. 1C	No. 2C
4/4-in.	170	160	115	68
6/4-in.	190	180	130	75
8/4-in.	200	190	150	85

BASSWOOD

				No. 2A
4/4-in.	180	170	130	88
6/4-in.	190	180	137	90
8/4-in.	195	185	147	96

BEECH

				No. 2C
4/4-in.	145	135	110	65
6/4-in.	160	150	120	75
8/4-in.	170	160	130	80

BIRCH

4/4-in.	265	255	150	80
6/4-in.	275	265	160	85
8/4-in.	280	270	165	90

BUCKEYE

4/4-in.	135	125	100	65
6/4-in.	165	155	120	73
8/4-in.	170	160	125	78

CHERRY

4/4-in.	230	220	150	90
6/4-in.	250	240	170	95
8/4-in.	260	250	180	100

CHESTNUT

	FAS	No. 1C	FAS WIND	1C & B WIND
4/4-in.	170	120	137	127
6/4-in.	175	125	142	132
8/4-in.	180	130	152	142

HICKORY

	FAS	FIF	No. 1C	No. 2C
4/4-in.	125	115	78	53
6/4-in.	145	135	86	58
8/4-in.	170	160	90	60

HARD MAPLE

4/4-in.	205	195	135	80
6/4-in.	220	210	155	84
8/4-in.	225	215	160	90

SOFT MAPLE

4/4-in.	165	155	115	67
6/4-in.	175	165	135	69
8/4-in.	180	170	140	75

RED OAK—PLAIN

4/4-in.	185	175	120
6/4-in.	200	190	140
8/4-in.	215	205	145

WHITE OAK—PLAIN

4/4-in.	200	190	125
6/4-in.	220	210	145
8/4-in.	225	215	155

WHITE OAK—WIND

	FAS	FIF	C & B	No. 1C
4/4-in.	125	115	95	90
6/4-in.	150	140	120	115
8/4-in.	160	150	130	120

YELLOW POPLAR

	FAS	FIF	No. 1C	No. 2A
4/4-in.	210	200	138	88
6/4-in.	220	210	150	92
8/4-in.	225	215	155	95

POPLAR SQUARES

	FAS	No. 1C & SD
4x4-in.	245	175
6x6-in.	280	190
8x8-in.	340	240

WALNUT—STEAM TREATED

	FAS 6"&up	FIF 6"&up	No. 1C	No. 2C
4/4-in.	370	325	180	75
6/4-in.	395	350	215	90
8/4-in.	420	375	235	95

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present f.o.b. Wausau, Wisconsin mill point average market prices to consuming trade on band-sawn Northern Hardwoods in carload quantities, random widths and lengths, rough air dried and graded in accordance with NHLA rules on inspection. Prices in dollars per M ft. On straight cars of upper bracket grades premiums are frequently being paid.

BROWN ASH

	FAS	No. 1C	No. 2C
4/4-in.	155	107	75
6/4-in.	165	123	85
8/4-in.	170	132	90

BASSWOOD

4/4-in.	191	131	89
6/4-in.	201	141	99
8/4-in.	206	151	98

BEECH

4/4-in.	145	100	68
6/4-in.	160	115	78
8/4-in.	165	120	80

BIRCH

4/4-in.	296	151	81
6/4-in.	306	166	91
8/4-in.	311	181	100

ROCK ELM

4/4-in.	150	130	66
6/4-in.	160	140	76
8/4-in.	165	150	81

SOFT ELM

4/4-in.	140	120	72
6/4-in.	150	130	82
8/4-in.	155	135	87

HARD MAPLE

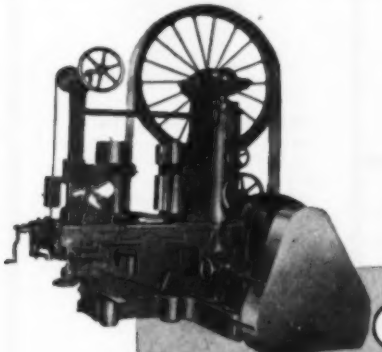
4/4-in.	196	131	78
6/4-in.	206	141	81
8/4-in.	216	151	83

SOFT MAPLE

4/4-in.	160	125	78
6/4-in.	175	135	85
8/4-in.	190	145	93

RED OAK

4/4-in.	186	126	78
6/4-in.	196	146	83
8/4-in.	206	156	88

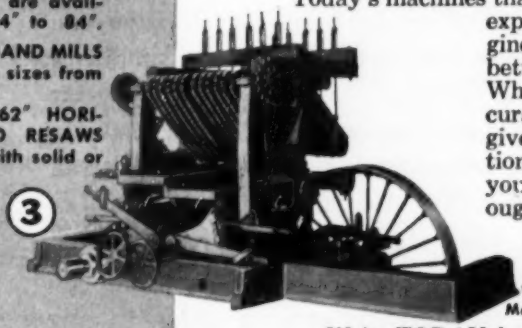


IT PAYS TO USE THE BEST

for • BETTER LUMBER • LESS KERF • MORE PROFITS

it's McDONOUGH

1. McDONOUGH VERTICAL BAND RESAWS are available in sizes 44" to 84".
2. McDONOUGH BAND MILLS are available in sizes from 44" to 84".
3. McDONOUGH 62" HORIZONTAL BAND RESAWS are available with solid or split tables.



World's largest producers of Band Resaws.

FOR OVER 65 YEARS McDonough Band Resaws have been operating in lumber producing and woodworking industries all over the world. Today's machines that incorporate 65 years of experience plus modern engineering developments are better than ever.

When you want rugged, accurate equipment that will give you maximum production with minimum upkeep you can depend on McDonough.

See the McDONOUGH 44" Vertical Band Resaw in Booth F-4 at the Woodworkers Industry Show May 5, 6, 7, Grand Rapids, Mich.

Write TODAY for complete information.

McDONOUGH MFG. CO.

1504 Galloway • Eau Claire, Wisconsin

On-the-job photo, Mid-State Wood Products Corp.

16 HOLES BORED IN ONE OPERATION

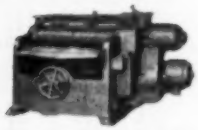
WITH GREENLEE NO. 386 GANG BORER

Here's another example of how the GREENLEE universal-spindle gang borer speeds production, assures accuracy of product. At Mid-State Wood Products Corp., Rockford, Illinois, this machine with one quick stroke bores 16 holes in fir plywood speaker panels for television sets. Due to its wide range and the convenience and simplicity of its adjustments, the GREENLEE is adapted to a great variety of boring work. Universal spindles can be quickly located at any point along the table . . . dozens can be used for one operation. Available in lengths from 4 to 16 feet to meet your exact production requirements.

Write for Bulletin No. 386 **GREENLEE BROS. & CO.**
1923 Twentieth Avenue, Rockford, Illinois.

GREENLEE WOODWORKING MACHINERY AND TOOLS
The GREENLEE line of woodworking machinery includes tenoners, mortisers, borers, saws, planers, and shapers.

GREENLEE DOUBLE-END TENONER . . . often called "a woodworking plant in itself." Renowned for quick, easy setup and wide versatility. Single-end Tenoners also made by GREENLEE.



GREENLEE SIX-ROLL SINGLE PLANER . . exceptionally smooth in operation. One of a line of single and double planers for fine work, high production.

GREENLEE MOTOR-DRIVEN SHAPER . . . all-around unit for high-speed, precision shaping. Double-spindle type, needs no separate frequency changer.

MORTISING AND BORING TOOLS . . . Countersinks, Hollow Chisels, Multi-Spur Bits, Machine Bits and other tools by GREENLEE mean top production from your woodworking machines.

GREENLEE

Some Quality, Some Profit - Some Don't Care!

"One of the problems in pulling our industry up by its bootstraps is the fact that such a large segment of the industry is not sold on the merits of shipping good lumber, properly handled, seasoned, manufactured and graded."

So says Tom DeWeese, progressive Mississippi lumber producer, in a letter published on Page 14. He puts his finger on one of the big reasons for the successful inroads made upon wood's markets by competitive materials, a subject about which much has been said on this page.

The condition is not peculiar to lumber producers alone. All segments of the wood industry suffer from it. When it's easy to sell what you make, the question of maintaining quality at a good level is minimized in too many cases. But when supply catches up with demand, buyers are prone to be more choosey and the problem becomes paramount.

So the smart operators today are taking stock. *They're checking raw materials*—to see whether anything better is obtainable for the end-product. *They're checking plant layouts*—to determine how they can be streamlined for top efficiency with minimum lost motion and waste. *They're checking the workers*—to make sure they are properly trained and understand the need for quality, for keeping costs down, for speed and maximum effort, to insure their jobs. *They're checking machines and equipment*—to see how they can reduce costs, speed up output, produce better finished goods by replacing faulty, obsolete units with modern, efficient ones. *They're checking management and marketing policies and methods*—to make sure they are geared to the new, tougher competition.

Even where some progress has been made along these lines there may still be room for improvement. For instance, the lumber manufacturer who points with pride to the new trucks he has just put on the road, or to some new log handling equipment, complains that his production per man day is less than half of what it was back in the twenties. But he fails to realize how much he would gain by also modernizing those departments in which the log is converted to finished lumber.

Again, the furniture or cabinet manufacturer who recently conveyorized his finishing system may have overlooked important profit leaks that must be plugged in his machining department. Or perhaps he has ignored the gains he would derive from better humidity control in his plant, or the use of gauges for more accurate dimensional control, or other factors having a vital bearing on quality as well as profits.

From now on, if you want a fair share of the consumer's dollar, you'll be more particular about *what* you sell him and *how you make it*. A good place to start doing something about it is the Woodworking Industry Show in Grand Rapids, Mich., May 5-7. Plan to attend.

Meanwhile, take a quiet, determined tour in search of ideas through the pages of Wood & Wood Products. You'll find plenty! In any case, get down to the roots of your problem now. Put your house in order so that you can meet—and beat—competition, and make money.

(Comments, and inquiries regarding distribution of reprints of this message to employees and others, are invited.)

ADJUSTABLE GAUGE at Morgan Mfg. Co., mounted on movable stand. Stop near operator's left is adjustable for every inch. Dial indicator reads 1/64 in.

How Production Gauges Eliminate Waste and Cut Costs

Close tolerances, clearances improve quality—Save on labor and material—Adjustable dial, individual gauges used

How MUCH can woodworking plants, notably furniture and cabinet manufacturers, gain from the use of gauges to maintain accurate dimensional control? Just how far do you have to go in controlling the dimensions of parts? Does every part have to be cut to "net size"? Can tolerances be used and, if so, how far can you go? What kinds of gauges are best for the individual operation?

These and other questions having an important bearing on profitable, more efficient production were investigated in a research project sponsored jointly by the Southern Furniture Manufacturers' Association and North Carolina State College. They are answered from the standpoint of actual advantages in daily use by Henry B. Pittman, Jr., quality control engineer for Morgan Mfg. Co., Inc., at Black Mountain, N. C.

As is well known, Morgan makes completely machined dimension wood parts, not only for the furniture industry but for other wood-using industries. The adjustable dial gauges which Mr. Pittman helped to develop as a member of the research team at North Carolina State have proved "almost indispensable" in producing this great variety of precision parts.

"Tolerances of plus or minus 1/128 in., such as might be required on television cabinets, library file cabinets and similar items," Mr. Pittman states, "may be easily held by using these gauges in conjunction with micrometers, calipers and other instruments to reduce hand fitting to a minimum.

"We use a 60 in. gauge between our two double-end tenon machines to measure and check critical dimensions, such as B.S. (between shoulders) measurements on bowling alley stock as well as the regular run of rails. One 24-in. gauge is constantly used in our chair department, mainly at the two double-end trimming, boring and chucking machines. We keep still another gauge at the disposal of all four moulder operators for checking widths and thicknesses.

"In adopting these gauges the only real 'bug' we encountered was in getting the operators to see that the advantages warranted using the gauges 100% of the time. Since they had no contact with the people who assembled the various parts, as the machine operators would in a plant that produced its own parts, it was hard for them to see that any real saving was effected. However, they are now completely sold as a result of the reduction of errors accomplished by use of the gauges. All the operators use the gauges in setting up their machines, and do it just as fast as when using a steel tape, but much more accurately."

Mr. Pittman reports that the "gratifying success" enjoyed with the gauges has led his company to set up plans for extending their use to a statistical quality control program.

Although moisture content is an important element in accurate dimensioning of wood parts, the combination of machine and operator is paramount and can be effective only so long as they work in perfect harmony. The machine will cut the parts accurately if the setup has been made with care.

Woodworking machinery manufacturers find it discouraging, as one of them put it, "to manufacture machines with precision measured in .0010 in., only to find that the work itself is measured against rough patterns or

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Control of dimensions in the woodworking field is far more important today than it ever was in the past. High labor and material costs, as well as competition for wood's markets, make this doubly true. In this industry too many plants operate with someone (usually a higher paid worker) continually correcting the mistakes another person has made along the production line—a shameful waste of time, money, personnel and material. How much better it would be all around if the right tolerances and the right dimensional gauges were applied at the right places and in the right way!

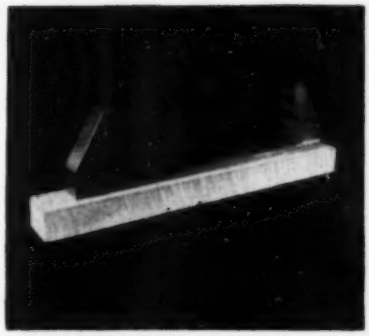
The accompanying article is based largely on the report of the joint research project sponsored by the Southern Furniture Manufacturers' Association and the Department of Engineering Research at North Carolina State College, under the direction of Associate Professor E. Sigurd Johnson of the college's Department of Furniture Manufacturing and Management. WOOD & WOOD PRODUCTS gratefully acknowledges their permission to use the material.

Interested readers are urged to write to J. T. Ryan, executive vice-president of the association at High Point, N. C., for a copy of the complete report, or we'll be glad to get one for you. It contains many pages of valuable test data as well as a full, illustrated description of the tests and their results.—*The Editors.*

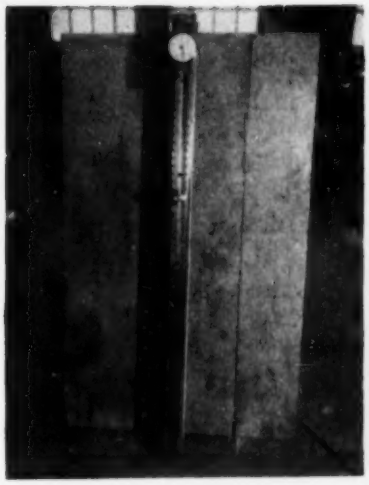
with rough measuring tools." Along with other machinery producers, he believes that gauges and other types of measuring tools must be developed to meet the requirements of the woodworking industry.

Some wood users are accustomed to working to extreme accuracy. For example, pencil and piano action manufacturers. They deal with small wood parts, and the only economical way they can get production is to have interchangeable assembly without hand fitting.

Even in the metal trades, where dimensional control is the rule today, it was many years after Eli Whitney demonstrated the miracle of identical gun parts which went together interchangeably before his idea of mass

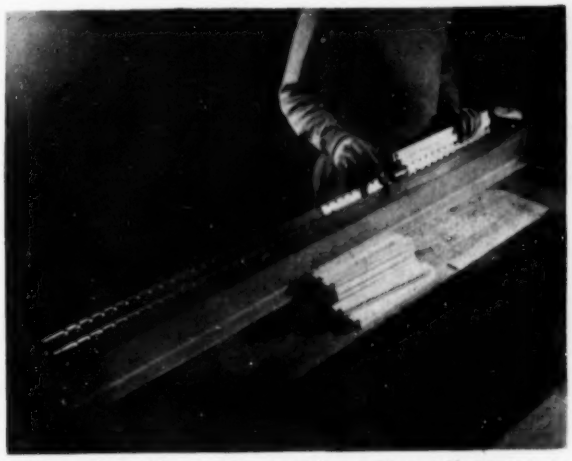


ABOVE — Individual gauge showing tolerance shoulders at right



RIGHT — Adjustable gauge showing groove and slots for positioning movable stop

OPERATOR sets machine so part will stop at center shoulder of individual gauge



USING adjustable gauge, operator makes adjustment to gauge drawer guide

production became a reality. Just as in the wood field today, it was very common in the old machine shop to hear the foreman tell the machinist to turn the shaft 13/16 *scant* or *full*, and nobody knew exactly how much under or over 13/16 in. that meant. So it is today when the foreman in the furniture plant tells the machine operator to cut the parting rail *light* or *heavy*.

An example of prevailing practice, even where some kind of dimensional control is used in the woodworking field, was the recent case of a plant making radio cabinets with the aid of individual gauges for the length and width of each part. Only thing wrong was that all the gauges were made from a hand-fitted sample cabinet!

As Mr. Pittman pointed out in his research report, one of the first things to learn about measurement is that *nothing is ever exact or perfect*. "Even in the precison metalworking shops, the customer who orders a hole bored exactly 2 in. in diameter is asking for trouble. When the machinist tries to get as nearly as possible to a 2 in. diameter, he will take much longer than if he knew how much accuracy was really needed. And in no case is it likely to be *exactly* 2 in."

The chief advantage of dimensional control is to obtain interchangeable manufacturing which in turn will produce other benefits such as lower costs. For example, in furniture production some assembled mating parts may require very tight fits, others not so tight but close enough to eliminate play, and still others may have a certain amount of clearance. Since absolute accuracy is impossible and the closest approach to it would be costly, why not accept the fact that there are varying degrees of inaccuracy which may be allowed or tolerated without weakening the functions of the component parts?

There is, of course, a difference between "tolerance" (the allowable variation from the desired dimension) and either "limits" or "clearance." Limits give the large and small dimensions, while clearance is intended to provide whatever fit or degree of tightness or looseness may be required between the assembled parts.

Realistic tolerances that are neither too close nor too wide are often difficult to set, but for the experiments reported here an attempt was made to set a standard tolerance which could be held without too much unnecessary work and cost in keeping the machine adjusted.

Two methods of gauging were used in the research project: (1) Individual gauges for length and width of each part, and (2) adjustable or universal gauges incorporating dial indicators.

The individual gauges were made for tests conducted at the Drexel Furniture Co.'s plant in Drexel, N. C. A French Provincial vanity which had been in the line several years was used. Careful records of parts measurements, machine room and cabinet

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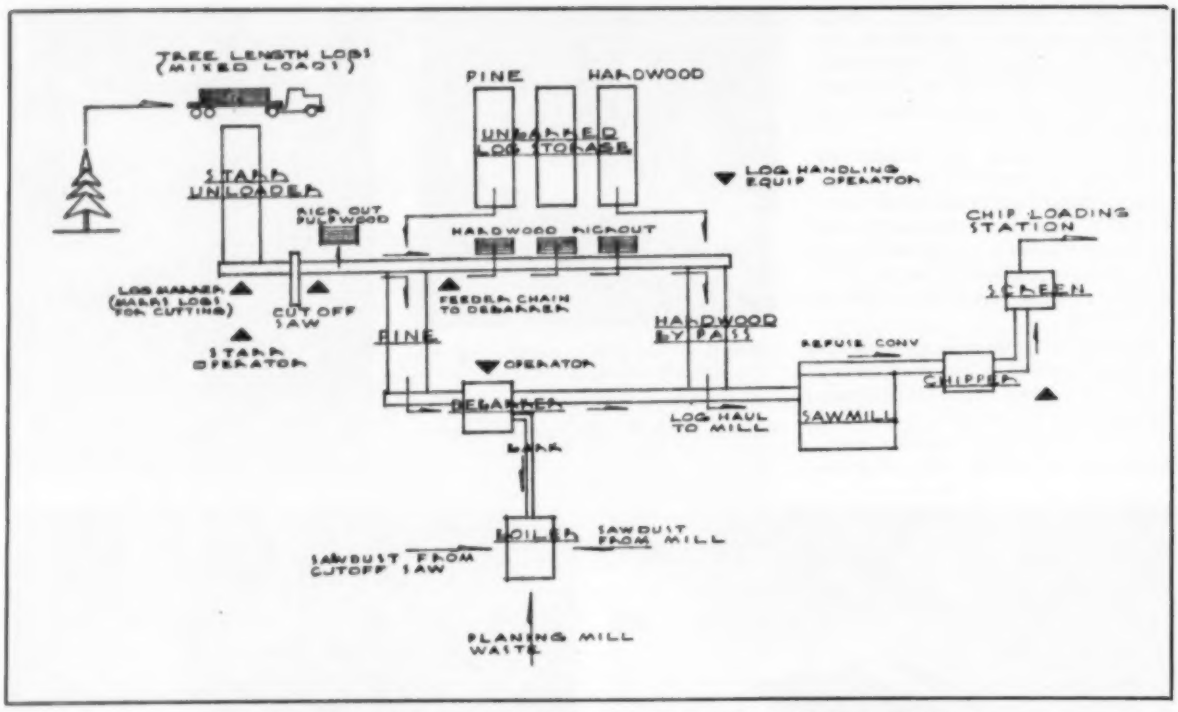

TYPICAL LAYOUT of large mill log handling, debarking and chipping operations

How to Engineer Log Handling, Debarking and Chipping Setups

Study available quantity and quality of raw material—Make sure layout of setup permits expansion—Know cost vs. net

By ALFRED MOURON

Rust Engineering Co., Birmingham, Ala.

ANY SAWMILL OPERATOR studying the possibility of recovering chips from mill waste should make, or have some competent person make for him, a thorough study of all the factors concerning a log handling, debarking and chipping program peculiar to his own operation. It is dangerous to use rule-of-thumb figures as to the expected chip yield, or to be sold on the idea that packaged units or layouts will suit every operation.

The study should begin with the quantity and quality of raw material that will be available. To secure this information, scan records of past production, from which a utilization chart similar to Table A can be prepared. Separate charts should be prepared for pine, hardwoods (species the paper mill will accept), and other species of wood not suitable for paper mill chips.

Such charts can be used to predict rather accurately the quantity of chips available for sale to the paper mills and the quantity of other waste available for boiler fuel or other uses. Based on present and anticipated future production, the utilization charts also point out the number of logs that will have to be handled and cut, the diameter of these logs, amount of bark to be conveyed from the debarker, and other necessary information to lay out the system intelligently.

The study should then look closely at the woods phase of the sawmill operation. Most southern sawmills are at the present time hauling single length logs to the sawmill. This practice is losing favor and the trend appears to be to tree length logging.

Tree length logging has several advantages, a few of which follow:

1. Savings in logging costs due to handling one double or triple instead of two or three single length logs.

2. Better utilization of the tree, since one trained and qualified man grades and marks for cutting instead of several less qualified men making the decision in the woods.

3. Due to better control and facilities, cutting at the sawmill permits more exact sawing for lengths, thus eliminating over and under-length logs.

4. At virtually no additional cost, one stick of pulpwood can be brought in on every tree, giving the sawmill operator a new or better source of revenue.

In studying the woods operation, it is necessary to determine the quantity of logs and the spacing of trucks as they arrive at the mill. This is very important in order to size the capacity and speed of the unloading facilities correctly, thus eliminating excessive delay at the unloading station by the logging trucks.

It is also necessary to determine the ratio of pine to hardwood. The management should be consulted concerning future plans and their estimate as to increased production in both the near and the distant futures.

After completing the woods investigation, a close study of the boiler in use at the sawmill is indicated if the boiler is wastewood fired. In the past, waste from the sawmill operation was a liability instead of an asset. For this

reason, fuel hogs were installed as boilers. The more fuel the boilers used. the less waste was left to be disposed of by burning on a refuse pile.

A refuse pile increases insurance rates and is expensive to operate and keep clean. Now that the waste from sawmills has a good and an increasing value, the mill management may find that a new, efficient boiler is indicated. The utilization chart previously discussed will help in making a decision on this point.

Bark, planing mill waste, and sawdust are still available at most mills for boiler fuel after the paper mill chips are sold, but studies indicate that several uses for these wastes will be developed in the near future.

To offset this loss of boiler fuel, some mills are electrifying the individual machines, installing electric log carriage drives, insulating and reworking steam lines and, in general, eliminating as much steam consumption as possible. There will probably be a demand for a certain amount of steam for use in the kilns and a few other places for many years, but this steam will be produced by small, efficient, well-designed boilers.

After studying records of past production, utilization charts, woods operation, and boiler demand, sufficient knowledge and facts will be available to make a preliminary layout.

In making the layout, provision has to be made for separating pine chips, hardwood chips (species the paper mills will accept), and waste not suitable for chips. There are several methods of accomplishing this result, but we feel the best method is to separate the logs into species prior to cutting and cut only one species in the mill at one time. Then the waste coming from the mill is separated and requires very little changes in conveyors presently serving the sawmill.

There are other advantages to be gained in cutting one species of wood in the mill at one time, over and above chip separation. A few of the advantages follow:

1. Sorting labor on the green chain is reduced.
2. Logs for special cutting can be run through the mill at one time.
3. The rare and more valuable species can be collected until several hours' run can be made, permitting more time for better sawing and utilization.

In a large number of southern sawmills, log handling to the mill is one of the most expensive phases of the whole operation. Labor savings from this operation will normally pay for a well-designed log handling system.

In order for the sawmill waste to be

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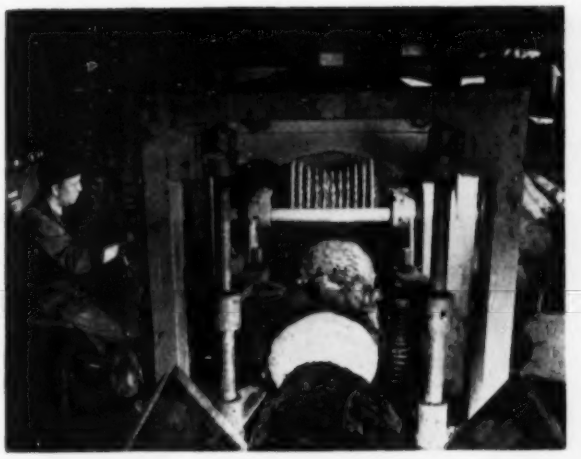
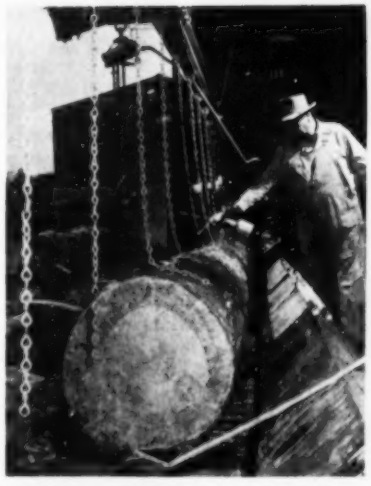


DEBARKING operation and new log handling system are closely tied in at W. T. Smith Lumber Co. installation (See July, '53, W&WP)



LOG progressing along main conveyor is marked for cutting

SCREEN drops chips onto main belt. Smaller conveyor removes sawdust

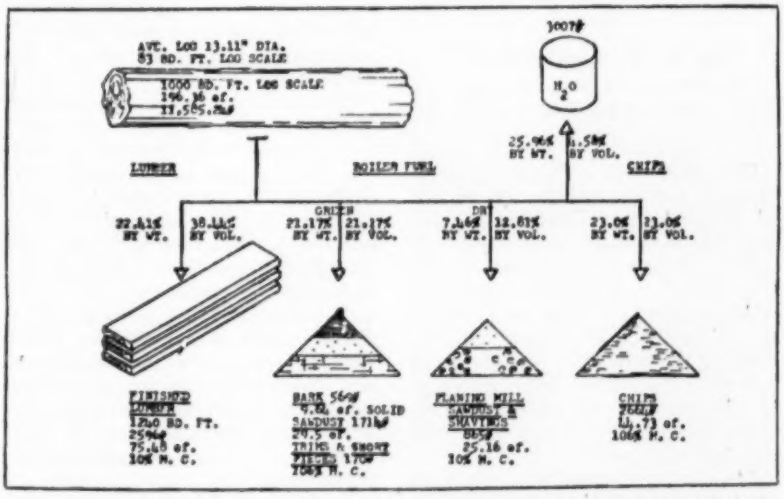
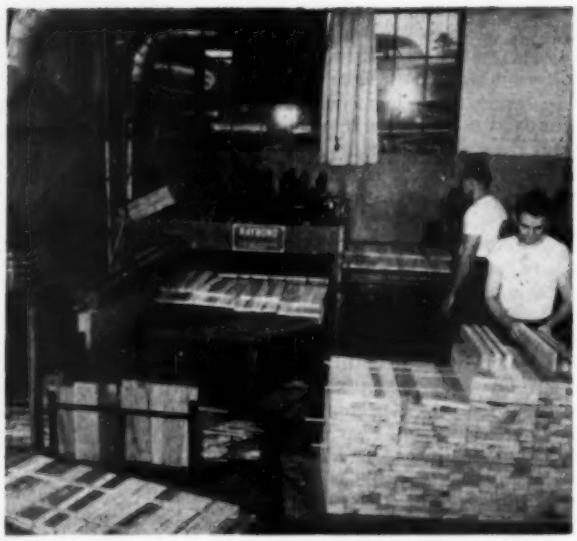


TABLE A—Chart for utilization of southern pine logs, based on average diameter of 13.11 in. For cutting other average diameter logs or for different conditions, quantities will vary, necessitating an independent study



LEFT—Curved stock in glue presses built by Hekman Furniture Co. for use with high frequency unit. RIGHT—Flat stock production, making use of same power unit

Profit Pointers on High Frequency Gluing

Economies of speed, labor and space made on curved rail and flat stock output at Hekman plant — Unit volume a factor

By S. W. TAMMINGA
Vice-President & Works Manager, Hekman Furniture Co.

THE ECONOMICS of high frequency gluing is a rather complicated subject which can be very provocative. Like anything that deals with costs and subsequent production values, an extreme number of variables must be reckoned with. These variables occur not only within a given plant but also within a given industry or parts of an industry. Thus anyone who says there is only one way to perform a certain operation is entirely out of order and certainly presumptuous.

Most of my material deals with experience at the Hekman Furniture Co. plant, Grand Rapids, Mich., which manufactures occasional tables. Bear in mind that applications which have proved economical for us may do the opposite for someone else in the furniture industry or even for some other manufacturer of occasional tables.

Our initial experience with high frequency gluing came about shortly after the last war when we witnessed demonstrations of high frequency generators in various local furniture factories. Our interest immediately settled upon the economy involved in producing curved rails for many of our tables because we, like so many others, were band-sawing solid cores from assembled blocks.

After about a month, during which time we checked quality, production costs and customer acceptance, we purchased a unit and proceeded in earnest to produce curved rails and panels, using thin stock to make these multiple-ply units.

The savings in labor and material involved in this procedure appeared quite obvious to us. Yet just a short time later another table manufacturer challenged our imagination by proving to us that he could make curved rails for his tables from mill room cuttings for less cost than if he used the high frequency technique.

This type of thing is what makes the economics of any problem interesting. Upon further examination it was discovered that the production conditions in his plant were entirely different from ours, in spite of the fact that both of us were producing a similar product.

In this field of high frequency gluing the basic economic factor is to be found, of course, in the speed with which the adhesive is cured. Because of this fact many square feet of production area required for a given phase of production can be saved and utilized for another. As an example, we should like to cite our experience in the rough mill.

Before we began using high frequency to lay up our core plates, we were using two clamp carriers. These, along with the stock in process area, required almost twice as much floor space for a given amount of production as we now use. The resultant savings of labor and floor space were naturally due to the decreased amount of curing time required as well as to the smaller amount of necessary machine area.

In conjunction with the application of high frequency gluing to the rough mill for core plate production, we have proved to our satisfaction that the greatest economy lies within the daily production range of approximately 4,000 to 15,000 feet of core stock. This fact may appear challengeable, but within the analysis of our production we found it difficult to make the machine pay off for a daily production of less than 4,000 feet. Likewise, we firmly believe that other equipment exists for production requirements which exceed the 15,000 foot mark.

In the field of panel production, our plant has some occasion to lay up flat seven or nine-ply units and for these we use high frequency. But since most of our production requires a five-ply panel we find the hot press most economical here. However, we have read of some of the west coast fir panel

Continued on Page 63

CONTROLLING equipment can be big factor in proper kiln operation, but judgment of operator is also important

Do's and Don'ts for Dry Kiln Operators

Here's a refresher on A-B-C's of kiln drying—Terminology, basic process of drying, some troubles in operation given

By RALPH W. SHEPHERD

THROUGH YEARS OF OPERATING KILNS and reading articles on kiln drying the writer has noted that the fundamental or basic information is usually taken for granted.

Why do we dry lumber, how does it dry, what causes checking and splitting, and so on, are questions that kiln operators in our smaller installations often have to work out by the trial and error method. Many of these operators have been given the job of operating the kiln, or two or three kilns, because they are either young and promising or are older men who do not have quite enough work to keep them busy all day.

Chances are that in either case the man has been put on a job for which he has had no training or specific knowledge. This statement is the result of observations made over a period when the writer was a service "engineer" and trouble shooter for dry kiln manufacturers. It was recently brought sharply to mind by two instances of kiln troubles caused chiefly by appointment of operators who had no previous experience or training to guide them in the work.

Let's take a moment to consider the basic ideas or groundwork of kiln-drying lumber and dimension. The first question usually is, "Why do we kiln-dry lumber?"

Lumber which has been on sticks on the yard for a year or more looks and feels dry enough for any use. But the fact is that it has only arrived at the point where it begins to assume the characteristics necessary in the production of furniture, flooring, interior trim and other products, in which minimum shrinkage, gluing, ability to hold a definite shape, and finishing are "musts".

Thoroughly air-dry lumber will have an average moisture content of 15%, plus or minus 2 to 4%, according to the locality where dried and the time of year. At this percentage, the shrinkage is just beginning. It is necessary to bridge the gap from this point to the point of maximum shrinkage needed for working into the finished product. This will vary with the product, its use and finish. Therefore it becomes necessary to kiln-dry this lumber.

Basic Terminology

In the drying of lumber, there are three basic factors to be considered: Heat, Humidity and Circulation. These three factors must be properly coordinated and controlled to obtain the most rapid drying possible with the least damage to the lumber. In the air drying of lumber these factors are present, but not controlled. The result is that some of our woods are constantly subject to seasonchecking, honeycomb and collapse.

With the modern dry kiln, it is possible to predetermine and control these factors in order to dry lumber rapidly, completely, and with minimum degrade and damage. In order to do this, it is necessary to understand, first, the common terms in use in kiln drying, and second, the basic process of kiln drying. The most common terms are:

Dry Bulb Temperature or Heat; the reading in degrees of the controller bulb or hygrometer bulb; the bulb which is not covered by a moist absorbent wick.

Wet Bulb Temperature; the reading in degrees of the controller bulb or hygrometer bulb; the bulb which is covered by a moist absorbent wick.

Relative Humidity; the relationship of the moisture in the air to that which it is possible, at any given temperature, for the air to hold. The percentage of relative humidity as used in the operation of kilns is obtained from published charts designed for this purpose.

Wet Bulb Depression; the difference in degrees between the readings of the dry bulb and wet bulb.

Moisture Content; the water contained in wood. This is expressed in percentages, the basic of which is either the weight of the oven-dry sample disc or the calculated dry weight of the sample board. This dry weight is shown as 1.000%, the moisture as percentages of this figure.

Equilibrium Moisture Content, or E. M. C.; the percentage of moisture content of lumber which will under sustained conditions equalize with the moisture content of the air. This E. M. C. factor can be obtained from charts compiled for this purpose.

Moisture content as expressed includes two forms of moisture:

Free Moisture; that moisture which is contained or held in the cells of the wood.

Hygroscopic Moisture; the moisture which is an integral part of the structure of the cell walls.

Fibre Saturation Point; the point at

KILNS must be well built to prevent moisture absorption and leakage

which the free moisture has been removed from the cells and removal of the hygroscopic moisture is started. The moisture content at this point is generally accepted as being 25%, although it will vary several points above and below.

Basic Process of Drying

The basic process of kiln drying or the removal of moisture from lumber should be understood by the kiln operator.

Before starting to dry a charge of lumber he should know the basic principles of the structure of wood, its strength and weakness as applied to drying, either yard or kiln and the application of these principles in drying.

To the kiln operator there are essentially two different types of wood. One type has pronounced, easily seen, medullary rays. Good examples of our common hardwoods are the oaks and beech. The other type does not have pronounced medullary rays. Examples of these are the maples, birch, walnut, and the softer textured hardwoods. Those woods with pronounced medullary rays present the greatest problem for the kiln operator. Another problem for the kiln operator is the drying of dimension stock.

In drying lumber or dimension today, the kiln operator is faced with drying much higher moisture content stock than was the case a few years ago. To dry this higher moisture content stock it is well to understand the movement of the moisture.

As the cell structure of woods is not visible except through the use of a microscope, a parallel has often been used by the writer in the orange. An orange cut through the center discloses numerous cells filled with juice. Each cell is separate and distinct, although surrounded by other cells. As an aid in visualizing the movement of water in lumber, consider that the cell structure of wood is similar to that of an orange.

The cells of freshly cut or "green" lumber are filled with free water. Water is also a component part of the cell walls. This is known as hygroscopic water or moisture. Drying of lumber or dimension starts with the evaporation of the free water from the outside of the piece—faces, edges and ends. The moisture is either absorbed by the surrounding air or carried away with the air movement (circulation). This moisture loss from the surfaces is replaced by moisture moving from the center of the piece.

In this process, there is developed a differential between the surface of the board and the center. This is known as the moisture gradient. There is also a moisture differential set up between the ends of the board and an area extending approximately two to three feet in from the end. This end drying is of particular importance in taking samples and in drying of dimension stock.

When drying lumber or dimension of a moisture content higher than the fibre saturation point a steep moisture gradient is developed. As drying progresses, this gradient will become less and less, until at 5 to 7% moisture content there should be very little difference in moisture content between the outer shell and the center of the lumber.

In very green lumber, the free moisture is easily visible. A kiln operator cutting successive cross sections of lumber while free moisture is present can observe the gradual changes in the concentration of this free moisture. Under the proper control, the area of free moisture becomes less and less visible until it disappears completely. This is usually near 25% moisture content—the *fibre saturation point.*

This stage of drying is the most critical stage in that permanent damage can be done or the lumber can be ruined entirely. This is particularly true of woods having prominent, easily distinguished medullary rays. The kiln operator should not attempt to speed up drying through application of temperatures higher than those recommended by the Forest Products Laboratory or the dry kiln manufacturer and designer.

Only a relatively small percentage of the total shrinkage develops until after the fibre saturation point is passed. During the removal of the free moisture, there is a steep moisture gradient set up between the surface and interior of the piece and also between the ends of the lumber or dimension and the longitudinal center. This becomes more noticeable as the thickness increases. As the gradient develops through drying of the surface, shrinkage becomes a factor.

Uncontrolled shrinkage is one of two factors which cause damage, the other factor being heat. When shrinkage is not controlled, opposing tensions are set up in the lumber or dimension being dried. Over-drying of the surface or ends, with the resultant tendency to shrinkage, causes a pressure to be set up against the non-shrinking interior. The first and most apparent result of this is season checking and splitting on the faces and ends. If this condition is continued, honeycomb and collapse can result.

The use of moisture in the air is to control shrinkage and prevent overdrying of the outside surfaces of the lumber or dimension.

Lumber or dimension which contains free moisture is subject to damage by the use of heat in excess of that recommended by the various schedules of drying.

In this early stage of drying, the recommendations for heat, humidity, or equilibrium moisture content should be closely followed.

After the free water has been removed and the moisture gradient becomes less, additional heat with lowering of the equilibrium moisture content is the order of drying. There are two types of drying schedules in use; one in which the heat is gradually increased in small changes; the other in which the heat is raised to a high point rapidly with a resultant rapid drop of the E. M. C. The choice depends upon the end use of the lumber, exactness of controls, experience of the operator, and physical condition of the kiln.

Sampling of the lumber to be dried is very important. Under present conditions much lumber has to be placed in the kiln before it is thoroughly air dry, 12 to 20% M. C. The more probable chance is one in which the lumber will range from 20 to 35% M. C. or higher. In this case, extreme care should be used to pick boards for sampling which are of the highest moisture content; also, in picking sample boards, those boards which are thicker than average and wider than average should be used. A 6 in. board will dry more rapidly than a 9 or 10 in. board, so the 9 or 10 in. board should be used. Also, when quarter sawn and plain sawn stock

Continued on Page 65

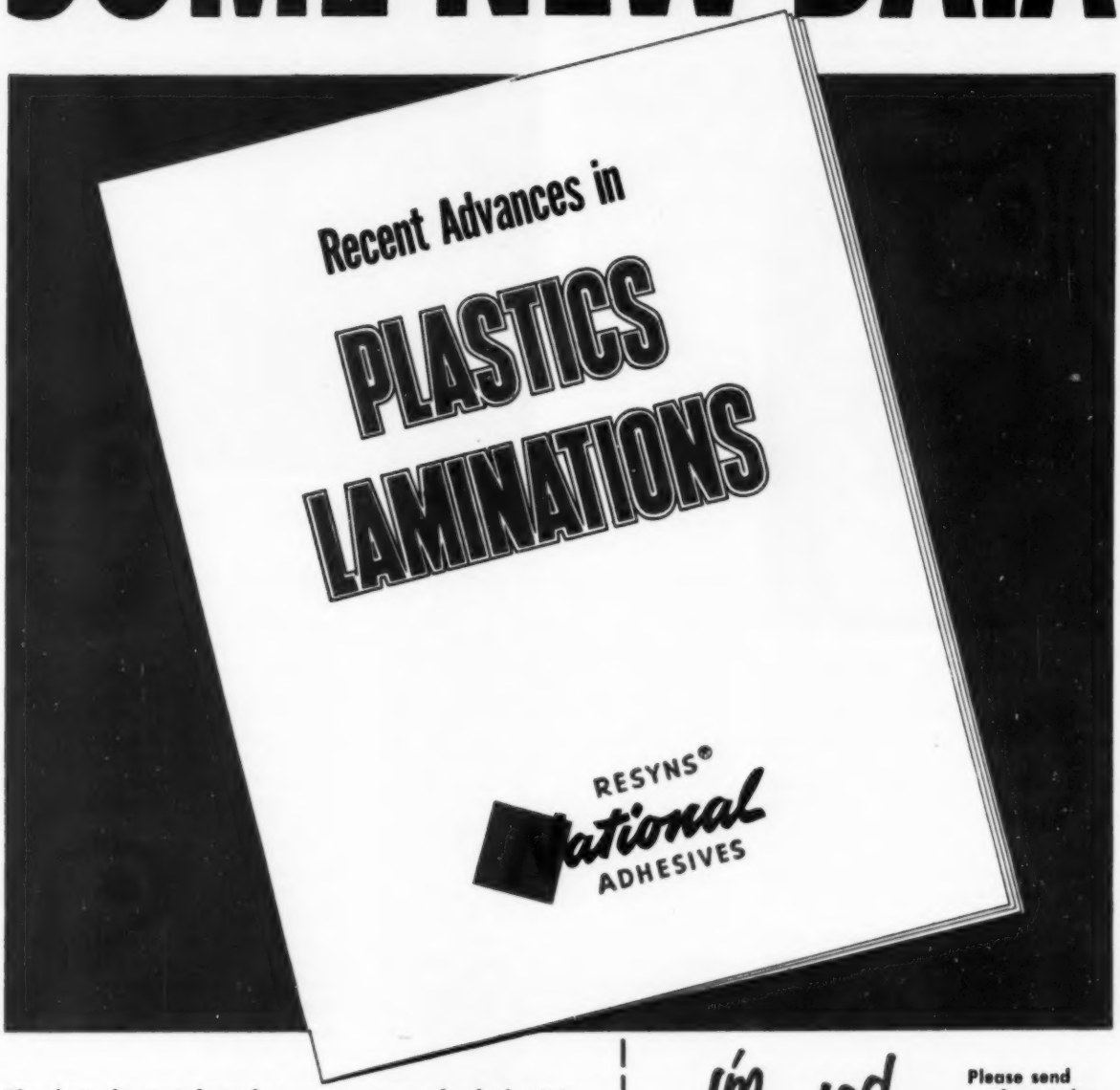
ORDER REPRINTS NOW

Because of a lively and continued reader interest in T. D. Perry's series of 14 articles (concluded in the December issue) covering a wide range of questions and answers about gluing, WOOD & WOOD PRODUCTS will shortly reprint them all in convenient handbook form.

The book, approximately 100 pages in length and well illustrated, will contain some 150 questions and answers. It should be an invaluable aid and ready reference manual for top management, foremen and employees responsible for gluing operations in any and all types of lumber, plywood and woodworking plants.

Write now and reserve the number of copies you will need for the personnel in your plant. Do it now and avoid disappointment later. Price per copy will be announced shortly.

SOME NEW DATA



The plastic dinette industry has grown so tremendously that it is now a significant factor in the woodworking field. Recently, the demand for plastic-laminate surfaces has carried over into fields previously dominated by wood. Plastic-surfaced case goods, occasional tables, and formal dining room tables are only the forerunners of this new styling in modern furniture.

Two problems confront every manufacturer: Volume production and cost savings. While there are many machines to aid in the rapid production of finished plastic laminations, the greatest obstacle has been the inability of old style gluing processes to feed sufficient laminated material to the production line.

A new 4-page leaflet: RECENT ADVANCES IN PLASTICS LAMINATIONS, contains some very valuable volume production and cost saving information. Copies on request.

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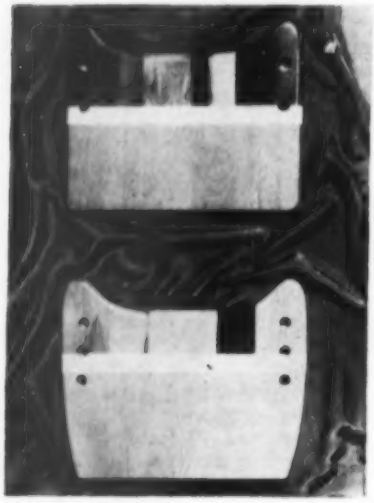
New Ideas and Equipment for Better Finishing

Dry-staining previewed—Automatic reciprocator sprays flat surfaces — Collector has 99.1% efficiency—Laminate-finishing is described



DISCOLORED poplar chair seats before and after Amergrain effects

GENERAL-PURPOSE Amergrainer recently installed at Mississippi Products Inc. plant, Jackson, Miss.

THROUGHOUT THE WOOD INDUSTRY, and especially among furniture and cabinet manufacturers, greater attention is being devoted to the finishing department today than ever before. As the industry continues its transition to mass production techniques, the idea of reducing the time of a finishing operation from, say, eight minutes to two or three minutes per piece becomes more and more important.

In keeping with this trend, some manufacturers have installed modern, efficient conveyorized finishing systems and automatic spray gun equipment. However, there is still a great deal of hand wiping, toning and blending, practices which differ little, if any, from those of 50 and even 100 years ago. Unfortunately, too, cost-per-gallon, rather than cost-per-finished-product, is the basis for buying finishing materials in all too many cases.

To help readers who are looking for new ways to get better finished products without going overboard costwise, WOOD & WOOD PRODUCTS presents this timely roundup of recent developments in finishing materials, methods and equipment.

Outstanding are the "Amerstain" and "Amergrain" methods of wood finishing which are previewed here in advance of the general announcement planned for later in the spring. Developed and patented by Lehwood Corp., South Bend, Ind., the dry-staining processes meet the need for practical equipment and methods for applying stain dry on the production line and producing today's popular light finishes over dark and streaked woods without bleaching. The processes are already being hailed in some quarters as "one of the greatest contributions to the finishing room since the development of the spray gun."

"Amerstain" is a unique method of dry-staining wherein no liquids are used. Dry pigments are mixed with a vehicle or carrier in proportions of approximately 200 parts by weight of carrier or vehicle to one part pigment. This mixture varies according to carrier used and depth of color desired.

The mixture is blasted or projected by means of centrifugal force, compressed air, or low-pressure blower, on the surface of the wood. The blasting takes place inside a well-ventilated cabinet similar to a spray booth, either by automatic and mechanized means or by hand, similar to the spray gun. Millions of particles of pigment are deposited on the wood surface by the carrier in a matter of seconds.

Any pigment not deposited on the wood is reclaimed and recycled back with the carrier in the exact proportions desired. The amount of pigment actually consumed, and consequently the material cost, is said to be astoundingly small. Hard-textured panels receive exactly the same amount of pigment as the softer ones; this produces extreme uniformity.

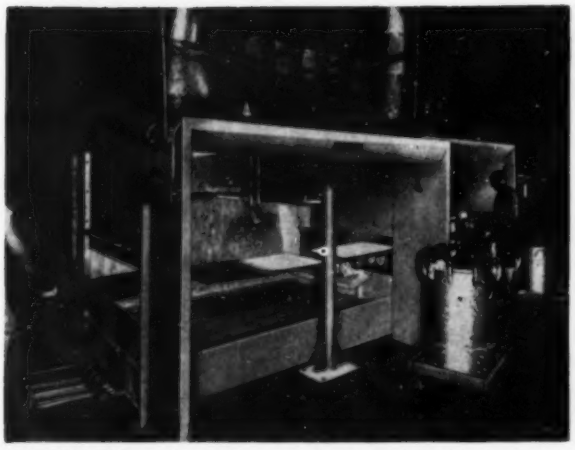
The article is then removed and, without any drying time, is immediately sprayed with sealer or other wet coat, generally of the lacquer type. The solvents disperse the pigments and draw them deeply into the pores and interstices. There is no question about the depth of color penetration.

Oak can be glued up in a solid panel alongside soft maple and, for example, a beautiful, uniform honey-maple finish produced by the process.

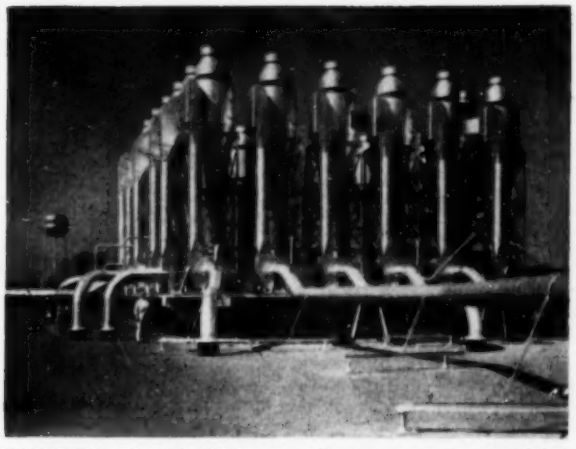
The equipment required for general furniture work resembles a spray booth. It can be adapted in size or shape to take any piece of furniture or wood product. The article is placed on a turntable and revolved as the operator blasts wherever desired with a flexible, light hose. The equipment is versatile and the operation is similar to the conventional method of spraying.

However, where sizes are uniform and high production is required, automatic equipment is available. The article is merely hung on a hook or conveyor pallet which passes through the blast and on to the finishing spray booth. Almost any desired rate of production is possible.

In comparing costs, both materials and labor are claimed to be considerably lower. Since no drying time is required, the finishing schedule is



AUTOMATIC reciprocating machine with cable-type conveyor duplicates stroke of hand spray operator



BATTERY of high-efficiency collectors serves machining department, including variety of finishing machines

faster, and less finishing room space is required. Wiping rags are eliminated.

In comparing labor, records show that a chair which required 5½ minutes for dipping and wiping and 3½ minutes for toning can be done uniformly in less than 2 minutes by the "Amerstain" method. If the wood is properly sanded before finishing begins, little or no hand sanding is required after the sealer, since there is no incompatibility between dry stain and sealer.

The process is carried a step further to produce an amazing finish known as "Amergrain," reports Elmer A. Skonberg, president of Lehwood Corp. By this method the natural grain of discolored, sap-stained and mineral-streaked wood is reproduced in any desirable color without bleaching.

Instead of blasting directly on the wood, an opaque coat of white is first applied by the usual method of spraying to obliterate the entire surface, including all discolorations. After drying, the surface is blasted in much the same manner as described for the "Amerstain" method. Pigments and carrier are mixed in any selected proportion to give the desired tone of color by a mere turn of an electrical control knob.

The wood's grain and figure is reproduced in all its various designs and textures on top of the white coat in much the same manner as the youngster in school reproduces the image of the buffalo nickel by placing a sheet of paper over the coin and rubbing it with his pencil. By bold relief the buffalo is reproduced; by modified relief and variation in texture, the wood grain is reproduced by the "Amergrain" process in any desired color including blond, wheat or the light pastels.

Clear coatings, such as sealer, lacquer or varnish, are then applied in the usual manner. Durability has not been helped nor hindered by this process, since durability depends mostly on the quality of the top coats.

"Never before," say the Lehwood people, "has it been possible to produce colors such as blue, green, pink, yellow, etc., except in solid opaque enamels wherein the grain and wood characteristics are lost. But by the 'Amergrain' process any and all of these beautiful colors can be produced over black-streaked or sap-stained woods without losing the inherent values, beauty and endearing qualities of the wood itself. The intriguing factor about this process is that the wood figure is reproduced just like the tree grew. The hard summer growth is dark and the spring growth is light."

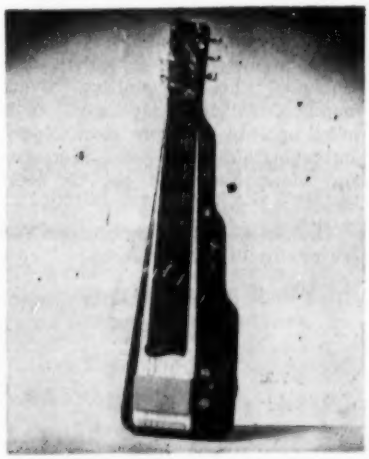
An automatic reciprocating machine used in spraying flat surfaces is said by its maker, the Binks Mfg. Co., to produce uniform finishes with practically any type of paint, vitreous enamel, dyes or other materials. In the accompanying illustrations it is shown in conjunction with a cable-type conveyor. Four automatic spray guns are mounted on the transverse reciprocating mechanism which travels back and forth across the panel and duplicates the stroke of a hand spray operator.

Machines of this type are standard production equipment in large textile, porcelain, building material and metal fabricating industries, and the unit is now being introduced to the wood finishing field. Many tanneries also use them to spray hides which travel under the transverse arm on a wire mesh type conveyor.

Binks also announces a new oil and water extractor designed especially for

Continued on Page 64

CONVENTIONAL lacquers are used to prime wood parts and assemblies prior to laminate-finishing



PEARLESCENT plastic coating on this wood musical instrument was obtained by laminate-finishing

INSPECTORS REPORT

DATE 9-2-5 CAR NO. T & B-40932 SHIPPER A.B.C. Lumber Co.

ITEM 4/4 Poplar ON ORDER #7032 AMOUNT Invoice $1580.00 Freight 150.00 TOTAL COST $1730.00

ITEM	FOOTAGE		MARKET VALUE		PER CENT	COST VALUE
	INVOICE	INSPECTION	PER M	TOTAL		
4/4 F.A.S. Poplar		150	$ 150	22.50		24.79
4/4 Saps & Selects		150	140	21.00		23.14
4/4 #1 Common	8,000	7,000	130	910.00	110.191%	1,002.74
4/4 #2A Common	6,000	5,000	90	450.00		495.86
4/4 #2B Common		350	50	17.50		19.28
5/4 #1 Common		600	140	84.00		92.56
5/4 #2 Common		650	100	65.00		71.63
Totals	14,000	13,900		1,570.00		1,730.00

INSPECTOR'S REPORT

GREEN SEMI-DRY DRY

BRIGHT STAINED NOT BRIGHT

COLOR FINE COLOR FAIR

COLOR GOOD COLOR POOR

CIRCULAR SAWED BAND SAWED

FLAT YES NO THICKNESS- GOOD POOR

AVERAGE WIDTH

5" | 6" | 7" | 8" | 9" | 10" | WIDER

PERCENTAGE OF LENGTHS

4' | 6' | 8' | 10' | 12' | 14' | 16'

FINE AS GRADED FAIR AS GRADED

GOOD AS GRADED POOR AS GRADED

TEXTURE

HARD | TOUGH | MEDIUM | SOFT

CAR RECEIVED- DATE HOUR

UNLOADING BEGUN- DATE HOUR

UNLOADING FINISHED - DATE HOUR

NO. OF TALLIES

WAYBILLED FROM

INSPECTOR

FIG. 1-A (above)—Front side of inspection report. FIG. 1-B (right)—Reverse side of same report

Methods of Valuing Incoming Rough Lumber

Use of inspector's report explained — Air-dried and kiln-dried rough lumber inventory sheets record running balance

By VINCENT E. NOLTEMEYER

Secretary-Treasurer
Gamble Bros. Inc.

MANY DIFFERENT METHODS are employed for valuing inventories. These methods may affect the comparison of profit and loss statements and balance sheets, so that the method adopted in any given situation should be considered from different standpoints.

In planning factory cost systems, is is only too common to consider operating requirements only. This vitwpoint may result in serious consequence since accounting is not merely a tool of management, but is relied upon by creditors, stockholders, and taxing authorities, whose interests and viewpoints must not be overlooked.

The following inventory methods are worthy of consideration:

1. Weighted average method.
2. First-in, first-out method.
3. Specific lot method.
4. Retail method.
5. Selling price method.
6. Standard cost method.
7. Base stock method.
8. Last-in, first-out method.

There are other methods which have been proposed for inventory valuation, such as moving average method, replacement method, and stabilization method, but they are not sufficiently important to justify discussion here.

The weighted average method is well established and is both theoretically and practically correct when identical items acquired at different costs are mingled. Only the average cost method is being discussed in detail, for it has been generally accepted by the industry as being in accordance with good accounting principles.

The form of inspector's report illustrated in Fig. 1-A (reverse side shown as Fig. 1-B) is recommended for the job of valuing the incoming rough lumber. This report can be attached to the inspector's tally cards, being used as follows:

1. Under "market value" in Fig. 1-A, record the market values of the respective thickness and grades. The individual concern may wish to apply other figures which are comparable to market values.

2. Record in the "market value" total column, the amount obtained by multiplying the footage *actually* received by the market value per M feet.

3. When all amounts have been recorded in the market value total col-

NOLTEMEYER'S MANUAL HELPS BUILD PROFITS

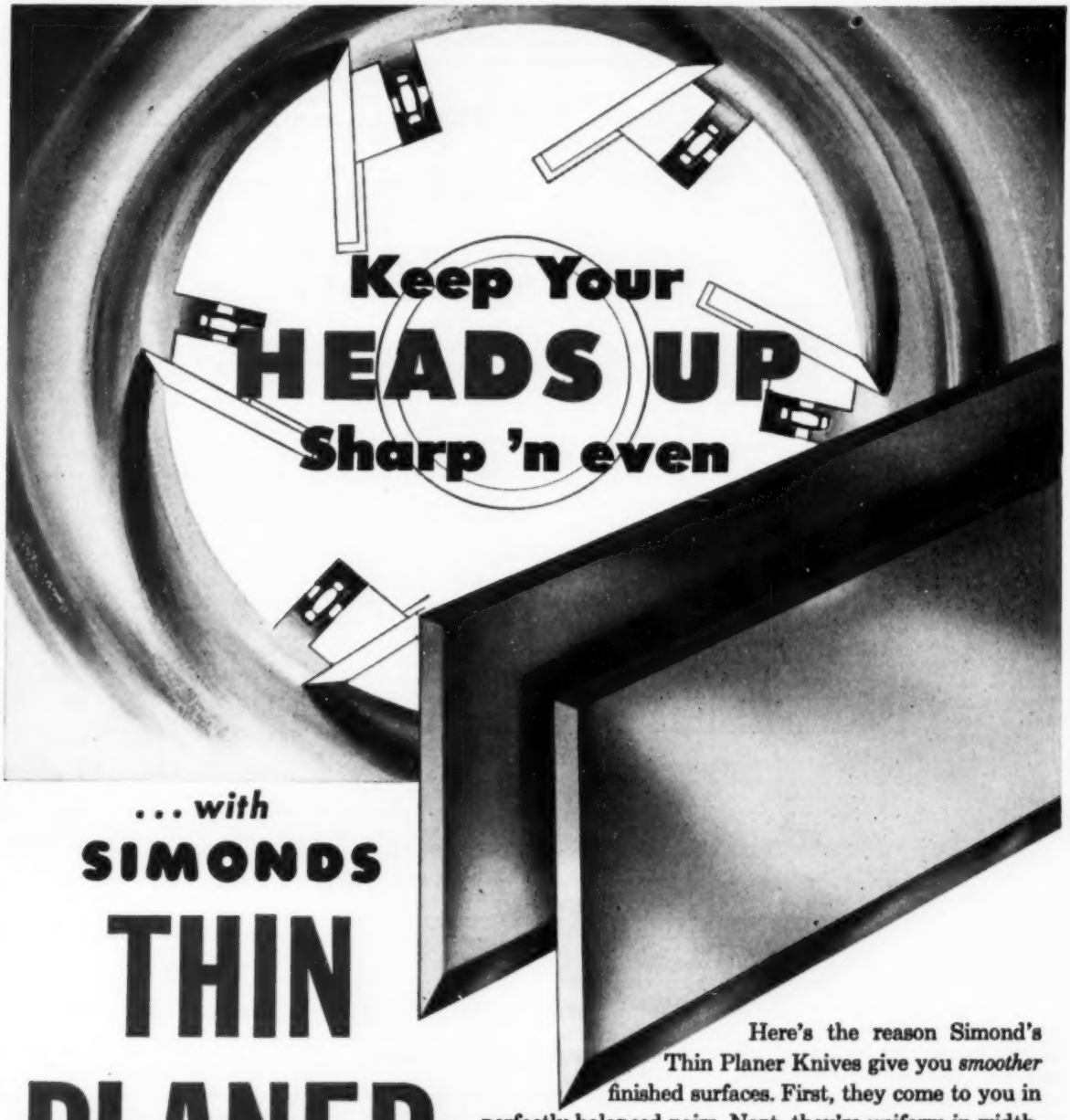
Because an up to date inventory and method of valuing incoming lumber are so essential to the smooth operation of any modern wood conversion operation, the accompanying article is presented as second in a short series Mr. Noltemeyer is writing exclusively for WOOD & WOOD PRODUCTS.

His next article will be devoted to costing lumber grades from sawmills, together with accounting for yard and kiln operations. The first article dealt with a discussion of guarding profits with lumber inventory control.

Mr. Noltemeyer is author of the manual, "Accounting and Cost Controls in the Hardwood Conversion Industry," a practical, well-illustrated handbook clearly defining methods that help build profits. Recognized as a highly competent authority on his subject, he has originated many systems and devices for greater efficiency in wood industry accounting. He has served as cost accounting committee chairman of the Hardwood Dimension Manufacturers Association and as president of Louisville Chapter, National Association of Cost Accountants.

Hundreds of copies of his manual, as mentioned above, are already in use throughout the industry. It belongs on the desk of every executive who is responsible for keeping a wood conversion business at profitable levels.

The book sells for $6 (postage prepaid) and may be obtained either through WOOD & WOOD PRODUCTS or by direct order to Mr. Noltemeyer at 4601 Almond Ave., Louisville 9, Ky.



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Canadian Factory in Montreal, Que.
Simonds Divisions: Simonds Steel Mill, Lockport, N. Y.
Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada

A. B. C. Furniture Company

DATE 19—	FOOTAGE RECEIVED	VALUE OF FOOTAGE RECEIVED	YARD HANDLING COSTS	FOOTAGE DISCHARGED FROM KILNS	FOOTAGE PUT IN KILNS	FOOTAGE CUT	FOOTAGE SOLD	FOOTAGE IN FOREIGN KILNS	FTS. IN COMPANY KILNS	INVENTORY VALUE	FTS. IN YARD	COST PER M
9-1	Beginning of month inventory balance								33,458	$8,754.23	37,044	126.17
9-2	7,000	1,002.74	63.00							1,065.74	44,044	126.70
										9,819.97		
9-6	8,000	1,120.00	72.00							1,192.00	52,044	128.39
										11,011.97		
9-10	10,000	1,300.00	90.00							1,390.00	62,044	127.96
										12,401.97		
9-11				10,000					23,458	1,298.60		128.86
										11,103.37		
9-15	7,000	945.00	63.00							1,008.00	69,044	130.93
										12,111.37		
9-18				12,000					11,458	1,571.16		130.93
										10,540.21		
9-19					10,000				21,458		59,044	132.93

ITEM 4/4 #1 Com. Poplar — AIR DRIED

FIG. 2—Air-dried rough lumber inventory sheet

A. B. C. Furniture Co.

1 DATE 19—	2 3 LUMBER REC'D S	3 FOOTAGE	4 VALUE OF FOOTAGE RECEIVED	5 KILN COSTS	6 FOREIGN KILN COSTS	7 INVENTORY VALUE	8 FOOTAGE ON HAND	9 DEL'D TO MILL FOOTAGE	9 DEL'D TO MILL DATE	10 COST PER M
9-1	Beginning of month inventory balance					6,951.51	53,771			129.28
9-11	C	10,000	1,298.60	50.00		1,348.60	63,771			130.17
						8,300.11				
						650.85	58,771	5,000	9-12	130.15
						7,699.26				
						780.90	52,771	6,000	9-15	130.15
						6,969.26				
						911.05	45,771	7,000	9-20	130.15
						5,957.31				
9-18	C	12,000	1,571.16	60.00		1,631.16	57,771			131.35
						7,588.47				
						656.75	52,771	5,000	9-21	131.35
						6,931.72				

ITEM 4/4 #1 Com. Poplar — KILN DRIED

FIG. 3—Kiln-dried rough lumber inventory sheet

umn, calculate and record in the "percent" column the percentage which the market value total is of the total cost, which in this example is $1580, plus freight of $150, or $1730. The percentage is 110.191%.

4. In the last column, record on the line opposite each grade received the figure in "market value" total column multiplied by the percentage. Do this for each respective grade.

5. Transfer to the perpetual inventory air-dried rough lumber sheet (Fig. 2) the respective footages and cost values accepted as shown under "inspection" column and "cost value" column.

On the left-hand side of this form are recorded the thickness and grades of lumber actually received, the footages being recorded in the "inspection" column. Under "invoice" the footage of the particular thickness and grade as invoiced by the shipper should be recorded.

Under the above instructions for valuing incoming rough lumber it will be seen that the amounts in the last column as well as the footage inspected and accepted, are to be transferred to the air-dried rough lumber inventory sheet.

In referring to Fig. 2 it will be observed that the "inventory value" column starts with a balance at the first of the month and receives entries as lumber is received, and a new cost per M is arrived at after each transaction.

"Footage received" and "value" are taken from inspection report. The column headed "yard handling costs" receives its entry on the basis of a standard cost per thousand feet. In this illustration the standard is $9 per M. This figure is arrived at by determining over a period of time the actual cost of handling lumber.

A study of Fig. 2 will clearly reveal the manner in which other transactions are recorded, which consist of footage of lumber entered in dry kilns, footage discharged from kilns, balance of footage in kilns, footage in yard, etc. At the end of the month a double line may be drawn and the succeeding months' balances carried forward.

The various transactions affecting this air-dried lumber inventory sheet can be observed by tracing the footage leading from the yard into the kilns. At all times the total air-dried lumber is considered as the total of the footage in *yard* and the footage in the *kilns*.

Below are instructions for use of the kiln-dried rough lumber inventory

Continued on Page 64

and it's sold here

This "peeler" log was once part of a giant Douglas fir that grew in Oregon's rich rain forests.

It is shown here in an Associated mill at the beginning of its transition from raw log to finished product. At the end of the manufacturing line it is excellent plywood, grademarked and trademarked in a double guarantee of quality.

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WOOD PUZZLERS

This department is designed to help find answers to your production and sales problems. Let us know what information you need. Experience has shown that other readers may be able to help you.

134—Hard Maple Shorts

We have available large quantities of hard maple shorts under 20 in. long in random widths. All 4/4 clear stock, put in dimension package. Reasonable. (N.Y.)

135—Cutting Boards

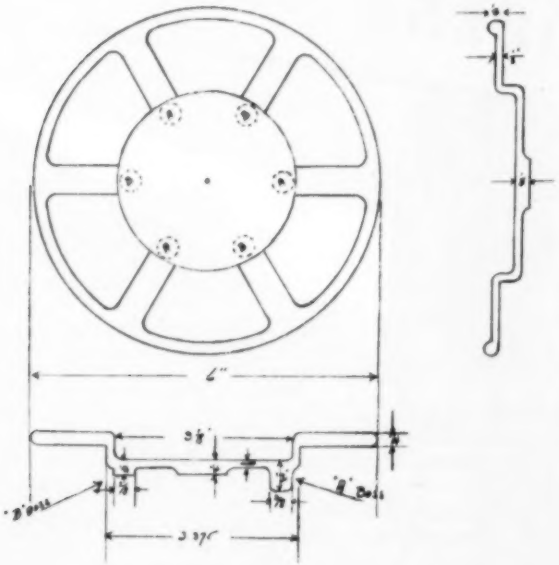
We are interested in locating one or more manufacturers of cutting boards, preferably in the area of the Adirondack Mountains, New York State. We are interested in rectangular cutting boards in various dimensions, made of maple, also 7 in. diameter round cutting boards ⅞ in. thick, of any hardwood. (N.Y.)

136—Mahogany Rippings

We would like to locate firms with mahogany rippings from 4/4 and up, with lengths 18 in. and up. We can also use various sizes of shorts in mahogany. (Pa.)

137—Material for Spool Ends

We are interested in finding out if a spool end part such as is shown in the accompanying drawing can be



made from "Castwood" (see Feb., WOOD & WOOD PRODUCTS). If not, can you suggest any other way it could be made? Considerable strength, both against pressure and shock, is required. (Ill.)

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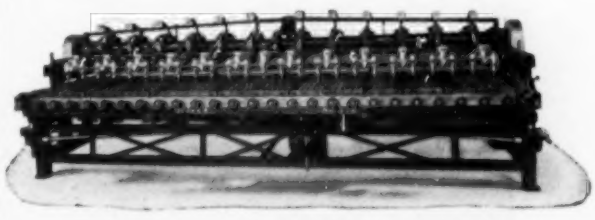
The low unit cost tells why woodworkers operate from one to nine Carving Machines on flat, round, odd-shaped pieces. Cuts half rights, half lefts, if desired. Quickly set up from the front. Carriage main beams and table beams remain perfectly straight. Tandem type spindle heads—one housing for two ball bearing spindles, with power to maintain high speeds under extra heavy cuts. *Write for fully illustrated Bulletin No. 308.*



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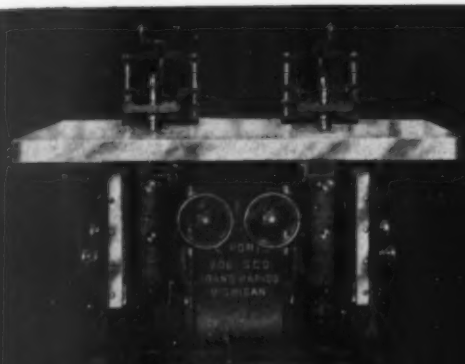


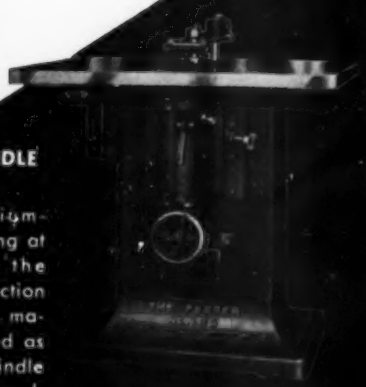
206 DOUBLE SPINDLE SHAPER
A heavy duty shaper with heat-treated steel spindles and high-speed ball bearings. Spindle tops are self-centering and detachable. Mirror-smooth table. 8500 RPM's

405 SURFACER
Handles 11⅛" lengths without butting end to end. Has a matched V-belt drive for rotating the cutterhead at 6,000 RPM to assure clean, smooth, perfect work.

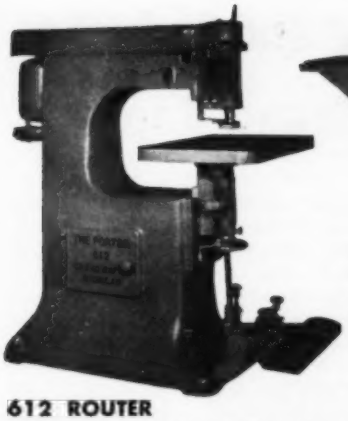
PORTER machinery is DIVIDEND DESIGNED

155 SERPENTINE SHAPER
Performs all types of curved or serpentine shaping. Tables run on ground and shaped dovetails. Two spindles with 12,000 — 18,000 RPM.

700 SURFACEMASTER FACING PLANER
All-steel construction, rugged as a battleship. Designed to accommodate conveyors. Infeed table and conveyor raise and lower together. Variable speed, 40 to 100 feet per minute. 24" and 36" widths. 3600 RPM with motor on arbor, 4800 RPM with belted motor drive.



105 SINGLE SPINDLE SHAPER
A high-speed, medium-sized shaper operating at 12,000 RPM's. Has the same rugged construction as the larger Porter machines. Also furnished as No. 112 double spindle shaper with same speed.



612 ROUTER
A heavy duty single spindle router. 2 speeds — 20,000 RPM and 12,000 RPM. Vertical table travel by foot pedal. Furnished also with sliding head. Other sizes also available.

300 JOINTER
Rigidly ribbed tables with aggregate length of 8'. Dovetailed steel lips, intermediate sliding table. 12", 16", 24", 30", 36" widths.

STRAIGHT LINE AND COMPOUND ANGULAR CUT-OFF SAWS
Keep perfect alignment, require less maintenance. Operate on hardened steel balls running in hardened and ground alloy steel raceways.

. . . to give you more production for every dollar you spend

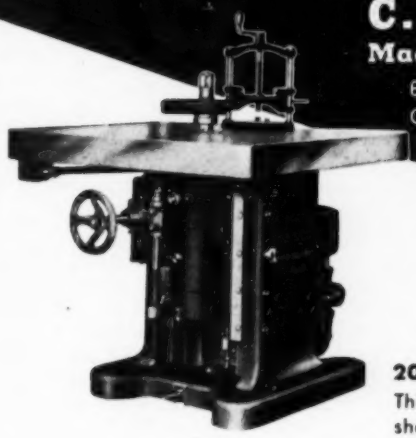
Buying Porter **DIVIDEND DESIGNED** Machinery is like buying custom-built furniture at a popular price. You get so much more for your money. Your cost per job is less because Porter Machines are faster, take heavier cuts and require less adjusting. They have an extra margin of speed, capacity and strength not found in ordinary machines.

Porter's Master Mechanics have concentrated on building fewer machines better. Each machine is built by specialists with years of experience in building one particular type of equipment. They take pride in their work and produce masterpieces of mechanical skill, designed to give you a profit dividend.

DIVIDEND DESIGN means all this and more, too. It typifies the engineering skill for which Porter has become famous. It describes the Porter "FEEL" for planning that enables 3 men to do the work of 8, or 5 men to do the work of 15.

If you need a Router, Saw, Shaper, Planer, Carver, Jointer, Surfacer or Serpentine Shaper it will pay you to investigate Porter, the machinery designed to give you greater dividends.

HYDRACUT SAW
(Hydraulic or Air operated)
Automatically operated straight line cut-off saw saves manhours. Cuts from 0 to 45 strokes a minute.



203 SINGLE SPINDLE SHAPER
This heavy duty single spindle shaper handles a full range of work from light to heavy at 8500 RPM's.

C. O. Porter
Machinery Company
667 Front St., N. W.
Grand Rapids, Mich.

The tall uncut is no place to talk the King's English. It has a vernacular all its own . . . words and phrases wearing horns and breathing fire. You may have your ideas of what a **corkscrew** *is but a Pacific Coast logger knows it's a geared locomotive.*

However, in the wood working industry words count less than action. Many manufacturers over the nation find Pamudo furnishes both — pleasing words and prompt action.

FIR PLYWOOD AND LUMBER PRODUCTS THROUGH WAREHOUSES AND DIRECT CARS FROM TACOMA.

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Pamudo
PACIFIC MUTUAL DOOR CO.
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RUST BUILDING, TACOMA 1, WASHINGTON

FROM TACOMA: Straight and Mixed Cars • Lumber and Lumber Products • Mouldings • Cut-to-Size Industrial Plywood • Cut Stock • Fir Plywood

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PLYWOOD • DOORS • MOULDINGS
STOCK MILLWORK

WAREHOUSES
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• Kansas City 5, Kan. • Baltimore 31
• Elizabeth, New Jersey

Plan FPRS Meeting and Industry Show May 5-7 at Grand Rapids

Eight technical sessions will stress timely problems — Machinery in operation under same roof to total $1 million

THE MOST EVENTFUL THREE DAYS of 1954 are being planned for members of the woodworking industry who attend the 8th annual national meeting of the Forest Products Research Society and the concurrent 1954 Woodworkers Industry Show May 5-7 at Grand Rapids, Mich.

The keen competition facing wood and its products now and in the future emphasizes the timeliness of what promises to be a strong program of eight technical sessions to be held in the same Civic Auditorium with the industry show. The latter will feature more than 200 woodworking machines and equipment of advanced design, many in actual operation.

Total value of the machines to be shown by the more than 100 exhibitors in the 30,000 sq. ft. of space is nearly one million dollars, according to A. H. "Sandy" Stuart, president of the sponsoring Hiller & Stuart Co. Additional value of tools, electronic units, humidifiers and the like which overflow into the main auditorium promises to put the final figure well above the million mark.

Nearly every important woodworking machine manufacturer will be represented with a variety of equipment which will be of interest to all kinds of wood processors — mill, sash and door, specialty firms, as well as furniture. Newly designed equipment, such as boring machines, self feed facing jointers, gang rip saws and others will be shown for the first time.

To help make these three days especially significant for the wood industry, the Forest Products Research Society has drawn together an experienced group of executives, technical men and educators. General chairman is Dr. J. Alfred Hall, director of the U. S. Forest Products Laboratory, Madison, Wis. L. J. Carr, president of L. J. Carr Lumber Co., Sacramento, is technical program chairman, and Prof. Fred E. Dickinson, Dept. of Wood Technology, U. of Michigan, is operating chairman.

Under their direction eight big technical sessions have been outlined to cover packaging, wood composition board, wood machining, wood drying, glues and gluing, wood finishing, and quality control. Playing an increasingly important role in the material presented at these sessions and in the advancement of technical information

J. A. Hall

F. E. Dickinson

in specific areas of wood technology are 13 FPRS subject matter committees:

These committees, headed by Moss B. Christian, Chicago Mill & Lumber Co., as general subject matter chairman, include:

Wood Machining & Equipment, L. A. Patronsky, Wabash Screen Door Co.; Wood Preservation, W. N. Darwin, Tennessee Valley Authority; Wood Drying, R. C. Rietz, U. S. Forest Products Laboratory; Logging & Milling, F. C. Simmons, U. S. Forest Service; Packaging, E. R. Stivers, Package Research Laboratory; Wood Composition Materials, G. G. Marra, Washington State Institute of Technology; Forest Products Education, R. W. Wellwood, U. of British Columbia; Glues & Gluing, Alan A. Marra, U. of Michigan.

Wood Finishing, B. E. Clatworthy, Radio Corp. of America; Quality Control, C. Latimer, Nickey Bros.; Chemical Utilization, R. C. Sproull, Herty Foundation; Veneer & Plywood, H. O. Fleischer, U. S. Forest Products Laboratory, and Dr. J. S. Bethel, N. Carolina State College; and Marketing, Phil Creden, Edward Hines Lumber Co.

In addition to the technical program and machinery exhibits, the well rounded agenda will include a choice of tours to five plants in the Grand Rapids area (American Seating Co., Stow-Davis Furniture Co., John Widdicomb Co., Grand Rapids Varnish Corp., and Mueller Furniture Co.). There will also be the traditional Paul Bunyan hour, the official FPRS luncheon and a separate program for the women.

"WOOD Awards" Will Be FPRS Feature

Presentation of the sixth annual awards to two college students for outstanding research in the field of forest products will be made by WOOD & WOOD PRODUCTS as a feature of annual meeting of the Forest Products Research Society May 5-7 at Grand Rapids, Mich.

Two cash awards and certificates of merit will be given—$350 for the best paper submitted by a graduate student, and $150 for the best undergraduate paper – based on research work completed in school subsequent to May 1, 1953, on a specific aspect of the field of forest products that is of current vital concern. Final entries must be submitted by March 31.

Judges for the contest will be selected by the Forest Products Research Committee on Education, chairmanned by R. W. Wellwood of the University of British Columbia. Deans or heads of departments at North American universities and colleges have been supplied rules and instructions for guiding students in submission of entries.

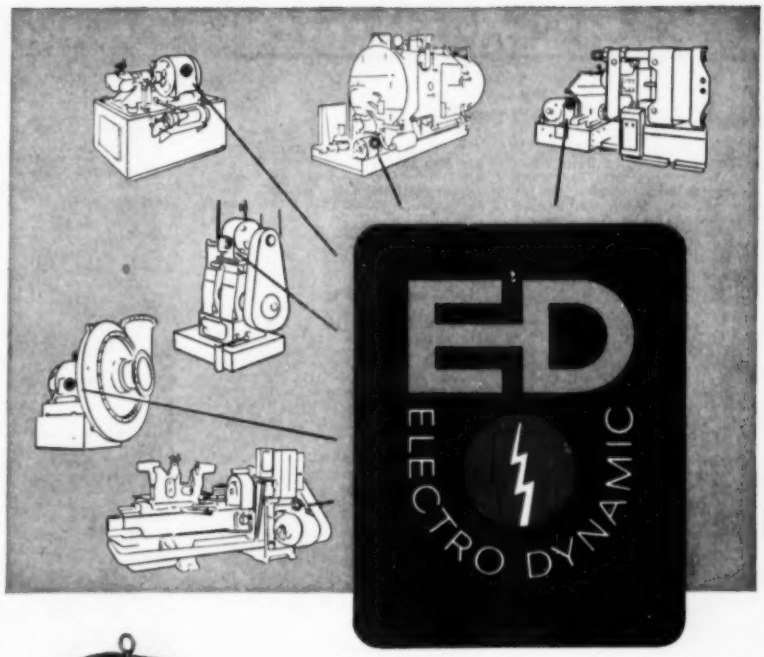
Papers will be rated on the basis of subject, skill of treatment, conclusions and applicability. Minimum length is 2,000 words, maximum 4,000 words, plus tables, graphs, line drawings and photographs as necessary.

Last year's winner of the graduate award was Eric L. Ellwood, Australia, representing Yale University. The undergraduate award went to James T. Rice, Birmingham senior at Alabama Polytechnic Institute.

WOODICTIONARY

SHANK

A device for locking inserted teeth in a circular saw.



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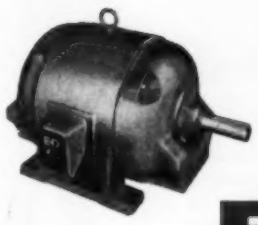

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COMPANY_____

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PATENT DIGEST

Fibers

J. d'A. Clark. U. S. 2,655,189, Oct. 13. Production of fibrous elements tapered at both ends and cut substantially parallel to the grain of the wood, comprising traversing pieces of wood and a rotary cutter relative to each other at a traversing speed of one-fifth the peripheral speed of the cutter.

Forestry Tool

A. F. Grissett. U. S. 2,655,763, Oct. 20. Forestry tool comprising a U-frame, cutter means supported on one end, a guide on the other end, a support slidably carried by the guide and movable toward and away from the cutter, said tool being used for girdling trees.

Tree Trimmer

S. P. Lagant. U. S. 2,655,957, Oct. 20. Flexible shaft driven tree trimmer powered by a motor towed by the operator.

Tree Felling Apparatus

M. F. Murray. U. S. 2,655,960, Oct. 20. A tree felling apparatus including a frame which is attached to the tree, a Nichrome wire attached to the frame, a prime mover dynamo power plant mounted on the frame for heating the wire and means for tightening the wire as it burns through the tree.

Culvert

C. T. Jensen (to Wheeler Lumber Bridge and Supply Co.) U. S. 2,657,713, Nov. 3. A culvert made of top, bottom and side wall sections, each being laminated, and made up of pieces disposed side by side and clamped together.

Barking Machine

T. O. Hillbom. U. S. 2,657,722, Nov. 3. Barking machine comprising a log container having parallel side walls and two end walls, log charging and discharging means at opposite ends, and threaded rollers for the debarking operation.

Log Classifier

K. L. B. Johannson (to G. G. Edstrom) U. S. 2,657,785, Nov. 3. A log classifying machine comprising a guide rail, movable log carriages releasable by a falling latch and a plurality of log receiving stations.

Protected Wood Structure

G. M. Williams (to United States Rubber Co.) U. S. 2,658,015, Nov. 3. Placing directly in contact with a face of a body of wood an uncured, solvent free mixture of cashew-nut shell oil—modified phenol-formaldehyde resin, a setting agent, butadiene-acrylonitrile copolymer, and diatomaceous earth, and curing under heat and pressure.

Log Debarker

W. P. McComb, Jr. U. S. 2,655,961, Oct. 20. A log debarker having revolving flails.

Plywood

D. H. Grangaard (to Paper Patents Co.). U. S. 2,656,296, Oct. 20. Process of manufacturing plywood covered with a resin impregnated fabric sheet.

Woodworking Machine

E. J. Verret. U. S. 2,656,861, Oct. 27. In a woodworking machine, the combination of a supporting standard, a frame, and a table having a hinged leaf and adapted for planing and sawing operations.

Veneer Joining

E. L. Croston (to American Manufacturing Co., Inc.) U. S. 2,657,160, Oct. 27. Machine for adhesively joining the edges of veneer sheets.

Flooring

J. E. Kitterman (to E. L. Bruce Co.). U. S. 2,651,289, Sept. 8. Apparatus for finishing wood flooring units including a stationary grill, spray means positioned above the grill, means for delivering liquid to the sprayer, and an endless conveyor.

Work Table

C. L. Spinney. U. S. 2,651,333, Sept. 8. A worktable for mounting a portable power saw.

Log Stop

W. T. Stockett, Jr. U. S. 2,651,334, Sept. 8. A log stop and kicker mechanism including a frame, a main shaft, and a log stop and kicker spool journalled on the shaft.

Sawmill

I. Stagg U. S. 2,651,335, Sept. 8. A log saw mill for cutting small dimension timber comprising a rigid frame having rails, a carriage formed by a rectangular open frame, sawing means, and means for adjustably cutting logs.

Chain Saw

H. E. Warren (to Lombard Governor Corp.). U. S. 2,651,336, Sept. 8. In a chain saw, an endless series of central links having pendent legs, connector links, and cutter links adapted to cut with a paring action.

Rip Fence

A. Pollack. U. S. 2,651,337, Sept. 8. In a rip fence for saw tables and mounting therefor, a support comprising a table having a flat top and provided at one edge with a fixed bracket-mounting element.

Tree Cultivator

J. Morkoski (to International Harvester Co.). U. S. 2,651,249, Sept. 8. Machine for cultivating trees comprising a tractive vehicle, a boom for swinging about a longitudinal axis, a segmental supporting member at the end of the boom having an opening to receive a tree, cultivating tools, and driving means.

Patents Pending

The Marvelous Montgomery

BLO-HOG

(The only all-purpose hog in the world)

Eats Up Everything!

. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer, Round-up and Sandy Bark. Conveyor-fed—no attendant required. Positively protected from major damage by tramp steel. All connections locked — nothing to shake loose. Maintenance costs unbelievably low.

". . . Dear Mr. Montgomery: It is an unbelievable machine and it is still hard to believe that it is actually handling the enormous volume of scrap we are feeding into it. We operate the hog without an attendant—which means a considerable saving.—J. B. Black, Plant Superintendent, Ocala Manufacturing, Ice and Packing Co., Ocala, Fla."

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- CENTRAL CONTROL PANEL
- QUICK CHANGE GEAR BOX
- HYDRAULIC HOIST (Mounted on lathe, optional)
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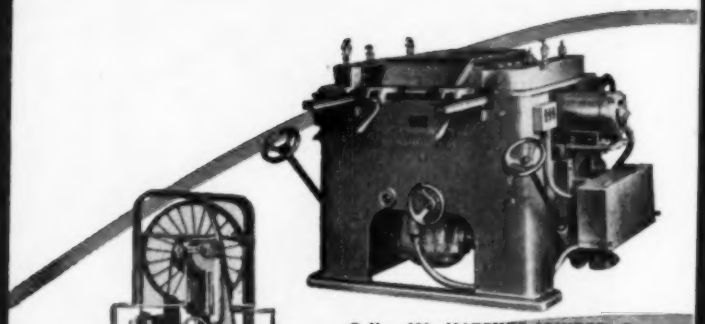
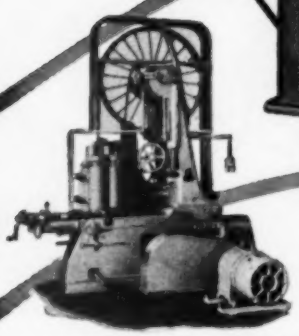
In this day and age of specialists all industries turn to the highly trained and experienced personnel who can serve them with the most efficient equipment known for the job at hand. JACKSON VENEER LATHES feature every operational advantage known to the veneer industry for top, profitable production. Check the features above and contact JACKSON for a service engineer to bring you the complete story.

JACKSON INDUSTRIES, INC.
VENEER MACHINES DIVISION
BIRMINGHAM, ALABAMA

HERE'S A *Quick Look* AT THE MEREEN-JOHNSON LINE

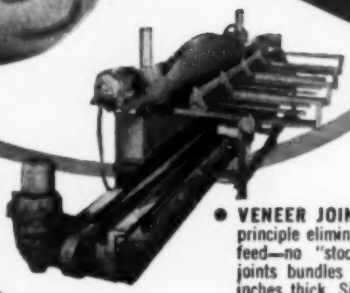


● **No. 326 MATCHER-JOINTER**—For sash and door, furniture and box factories—as well as for many special uses. Adaptable for jointing hogshead staves. Unequalled for "T" and "G" work. Described in Bulletin No. 326.

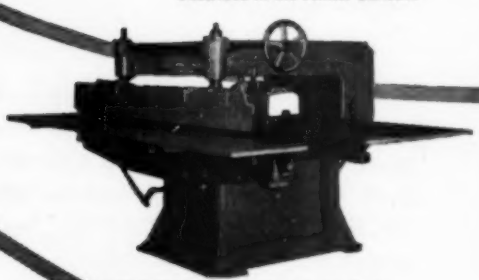


● **VERTICAL BAND RESAW**—Eight feed rolls eliminate "stock wobble." Sizes 43" to 67". Variable feed drive; 100% ball and roller bearings. 54" Twin Band Resaw. Combination band rip and resaw. Described in Resaw Bulletin.

The experience . .



● **VENEER JOINTER**—Traveling head principle eliminates shifting. No chain feed—no "stock wobble". Perfectly joints bundles of veneer up to four inches thick. Sizes from 90" to 212". Described in the Jointer Bulletin.



● **VENEER SPLICER**—Makes precision [illegible] joints. Adjusts itself automatically [illegible] varying thickness of veneer normally encountered. Welded steel frame with 49" [illegible] clearance at right. Described in Bulletin [illegible]

Write for illustrated bulletins

MEREEN-JOHNSON MACHINE COMPANY

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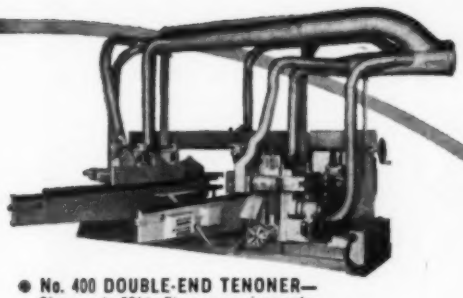
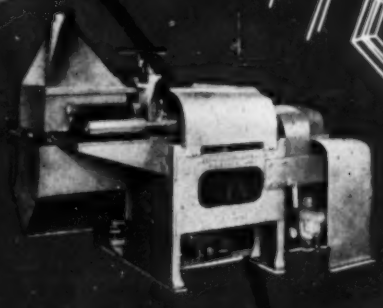
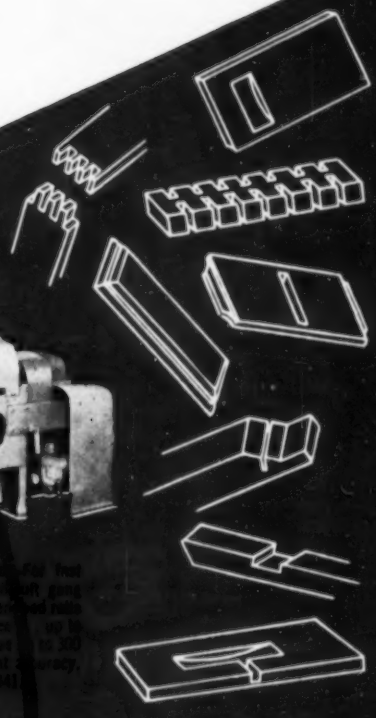
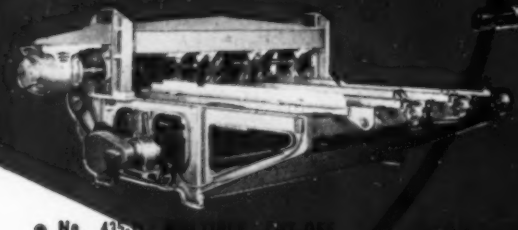


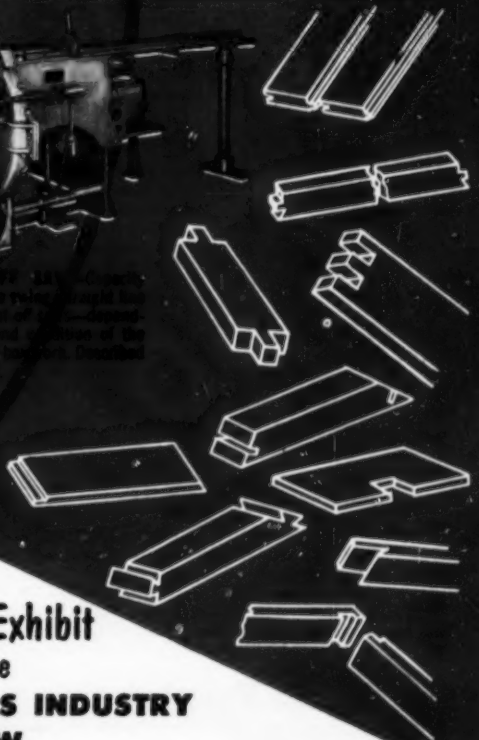
● **No. 400 DOUBLE-END TENONER**—Sizes up to 20' to fit your requirements. Will square-cut up to 96" ahead of trim saws. Several accessories to multiply its usefulness. Described in Bulletin No. 400.





. . . the equipment . . . the manpower for producing precision machines





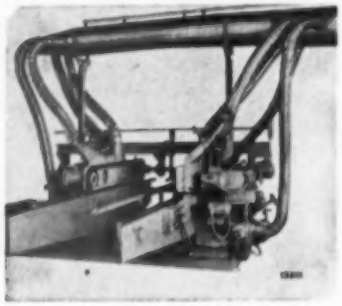
● **No. 435-H MULTIPLE CUT-OFF SAW**—Cuts long pieces into short pieces . . . will square sheets . . . and will cut any grooves. It's an excellent pi sizer. Described in Bulletin No. 435-H.

● **No. 442-MT COMBINATION SAW**—Versatile machine for ripping, cross cutting, grooving, dadoing, beveling, mitering. Cuts up to 48" wide and rips up to 50" wide. Easily handles large stock. Described in Bulletin No. 442-MT.

See our Exhibit at the WOODWORKERS INDUSTRY SHOW

GRAND RAPIDS, MICHIGAN—MAY 5-7

NEW and IMPROVED PRODUCTS

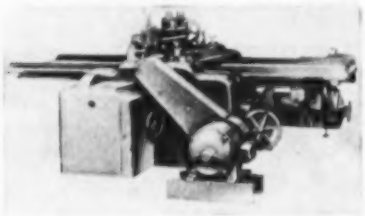


Double End Tenoner

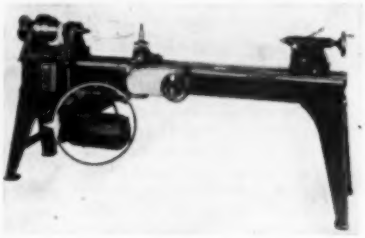
A new low cost, compact double end tenoner with the same quality and workmanship that characterizes the larger machines is available in Model No. 700 from Mereen-Johnson Machine Co., Dept. WP, Minneapolis 12, Minn. The machine is built to afford easy access to adjustments and to minimize down time for set-up changes. Only the less essential features are eliminated in this model designed for use in the furniture, sash and door and allied woodworking plants. It comes standard with trim, tenon and cope motors.

Planer for Thin Materials

A new specialized planer for thin materials has been placed on the market by Buss Machine Works, Dept. WP, Holland, Mich. Known as the Micro-Surfacer, the machine was developed from one of the standard Buss planers for use in planing hardboard, pressed wood and other materials too thin to be handled by standard planers.



The machine has a patented work platen and vacuum system which rigidly holds down the stock during the feeding and cutting operation, high speed steel knives in a cutterhead operating at speeds up to 5 rpm, and may be had with both infeed and out-feed conveyors for the rapid handling of stock. Other features: chrome plated wearing surfaces, semi-automatic control of lower rolls and pressure bar, one-shot lubrication. It is available in various width capacities up to 50 in.



Gearshift Drive for Lathe

Sixteen rapid changes of speed are now provided by use of the Lima Gearshift Drive as original equipment on the Oliver Patternmakers lathe. Increased selectivity of speeds has improved the operating efficiency of the lathe, the drive being ceiling mounted. The drives also can be arranged for wall mounting, vertical mounting and standard horizontal floor mounting and are manufactured in ratings of ½ to 15 hp. Write for new brochure to Lima Electric Motor Co., Dept. WP 179, Findlay Road, Lima, O.

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or made to order

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Our 35 years successful experience, a top-grade management-skilled worker team, and use of the latest-type machinery and methods, has kept the quality of our product far above that of the average plywood. We offer it at competitive prices; and you're getting a finer value when you specify PERMAWOOD Hardwood Plywood.

A Hot-Plate Press in closed position. Skilled workmen exercise every care to insure that PERMAWOOD Hardwood Plywood is properly glued.

PERMAWOOD panels are made in Standard Sizes. Thicknesses in All Veneer construction from 3/20" to 1 1/16", and Lumber Core construction in 3/4" and 13/16". Widths from 30" to 48"; lengths from 36" to 96". Write for latest stock lists and prices.

DARLINGTON VENEER CO., INC.

Established in 1918

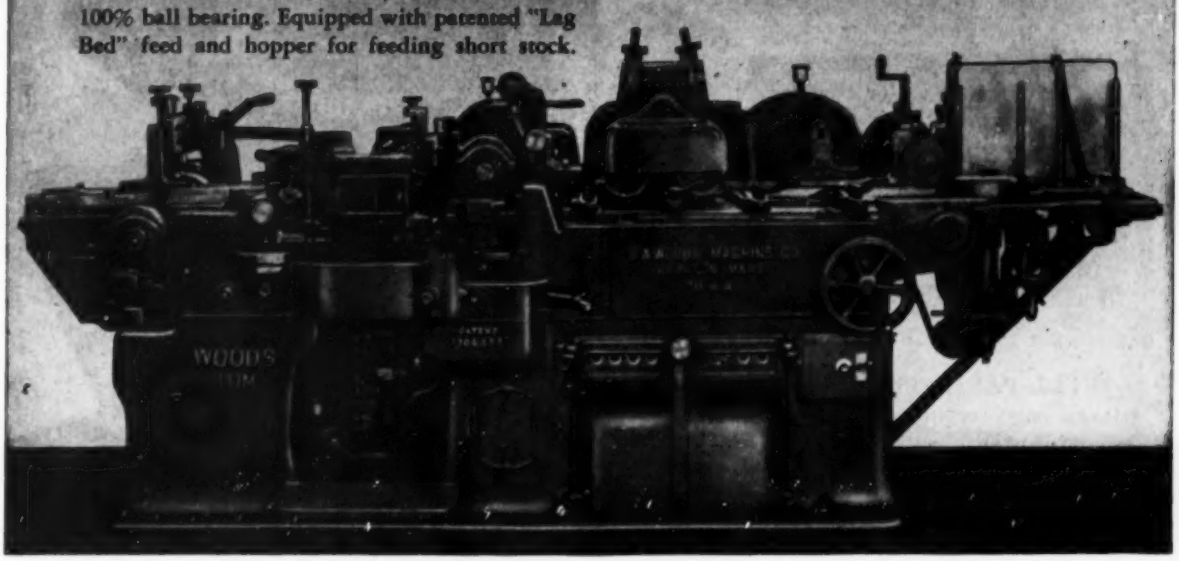
DARLINGTON, SOUTH CAROLINA

You can't beat the
WOODS 137M ELECTRIC MOULDER
... FOR SHORT OR LONG RUNS!

The Woods 137M Electric Moulder with patented "Lag Bed" feed is designed for versatility and flexibility for every woodworking plant that does moulding work of any kind, furniture, cabinets, chairs, trim or interior finish. Quickly accessible for profitable operation on long or short runs. Hopper feed is available.

Full particulars on request.
Send for new moulder bulletin.

Woods 137M 6" Electric Moulder. Motorized and 100% ball bearing. Equipped with patented "Lag Bed" feed and hopper for feeding short stock.



S.A. WOODS MACHINE CO.

The Moulders for today's and tomorrow's requirements

27 Damrell Street, BOSTON 27, MASSACHUSETTS

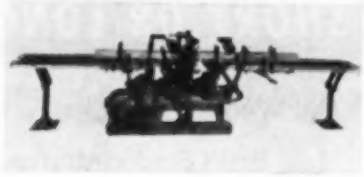
PORTLAND, ORE. • MEMPHIS, TENN. • LITTLE ROCK, ARK. • SAN MATEO, CALIF. • RICHMOND, VA. • MT. VERNON, N.Y.
CANADIAN: W. A. AKHURST MACHINERY CO., VANCOUVER, B.C. • CANADA MACHINERY CO., GALT, ONTARIO
EXPORT: UNITED STATES MACHINERY CO., INC., NEW YORK, N.Y.

Rubber Tired Band Saw

An improved version of its standard 20 in. band saw featuring rubber tires fused to pre-faced demountable steel rims has been introduced by the Delta Power Tool Division, Dept. WP, Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa. Use of the new tires, known as "Carter Jiffy Tires", promises to reduce down time and overcome a major service problem in the woodworking industry.

Lumber Wrapping Machine

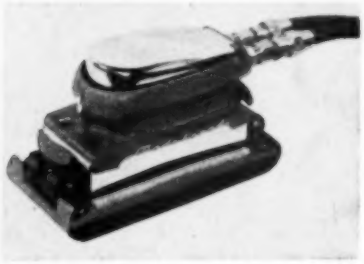
A lumber wrapping machine capable of wrapping lengths of lumber, bundles of molding, window sash, venetian blind slats, facia trim or similar items with major diameters from 1 in. to 5 in., 2 in. to 6 in., 3 in. to 8 in. or 4 in. to 9 in. is available from Pierce Wrapping Machine Co., Dept. WP, 1100 E. 31st St., La Grange Park, Ill. Shuttle speed, width of paper used and advance per shuttle revolution can vary with type of package. Wrapping time with a shuttle speed of 350 rpm and 1 in. advance is 30 ft. per minute.



The machine has rubber covered rollers that adjust to bring the guides into position against the package to insure centering. It has a hollow shuttle with special fittings to apply a thin film of glue on outer edge of paper while package is being wrapped, cementing it to the preceding layer of the wrapping. It can be equipped with a printer for continuous printing on the top of the package while it is being wrapped.

Spray Booth Protector

Adhesive Products Corp., Dept. WP, 1660 Boone Ave., New York 60, N. Y., has developed a Zipcote spray booth protector which when applied to spray booths or turntables prevents paint and adhesives from sticking to the walls of the booth. The accumulation of sprayed materials can then be readily peeled off, saving many man hours of work. It can also be applied to work tables used for gluing. Noninflammable, it can be applied by brush or spray, and spray booths or turntables can be used immediately after application.



New Orbital Sander

A new orbital-type air sander for fast material removal has been announced by Sundstrand Machine Tool Co., Pneumatic Div. WP, Rockford, Ill. Speed of 6,000 cycles per minute puts it in the range for rough sanding and preliminary operations by pro-

FULL PANEL PLYWOOD SCARFING takes only seconds to solid-set with this Mann-Russell Electronic Scarfing Press. No excessive pressure is required. There is no conduction heat applied, and no stored heat to disperse. The moisture content of panels is unaffected, scorched faces are eliminated. This is just one of a complete line of Mann-Russell Electronic Generator - Equipped patchers, presses, veneer and lumber edge-gluers. Equipment is engineered to specific use requirements, installed and serviced as a single-responsibility package. Write MANN-RUSSELL ELECTRONICS, 2156 Pacific Avenue, Tacoma 2, Wash.

This Close-up of BRADLEY

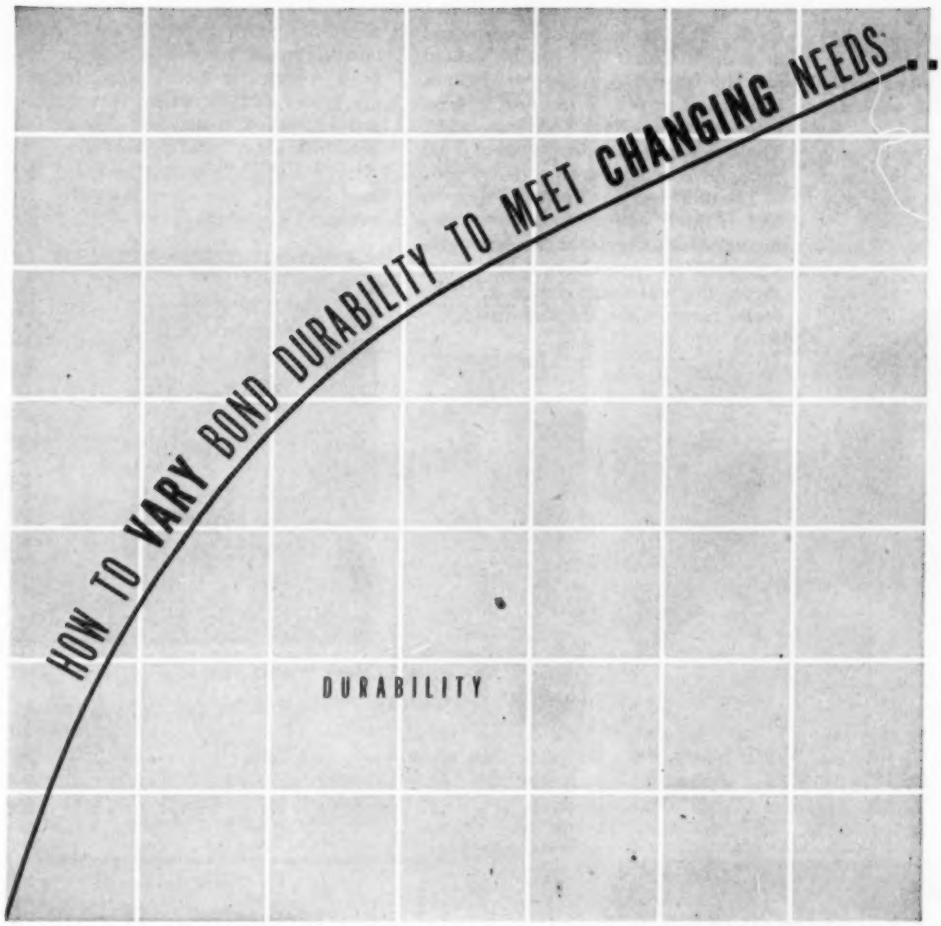
HARDWOOD FURNITURE DIMENSION

Shows you why quality furniture manufacturers depend on Bradley for specifications in Southern species, cut-to-length, solid or glued, worked to pattern.

Shall we quote?

BRADLEY LUMBER COMPANY *of Arkansas*

WARREN, ARKANSAS



...with Monsanto Lauxite MF 300

The addition of as little as 10% of Lauxite MF 300 melamine resin improves the bond durability of urea glues. By varying the percentage of Lauxite MF 300, you can obtain any degree of durability your individual needs demand. This flexibility results in real dollar and cents economy—often saving plywood manufacturers *up to 50%* in glue costs.

Other advantages of Lauxite MF 300 include its colorless glue line and simplicity of use. Already, woodworkers are finding it extremely profitable to upgrade flush doors, export shipping containers, table and desk tops, and many other products with this more durable adhesive. So, why not call, or write or wire and let a technical representative of Monsanto, *the world's leading supplier of glues to the woodworking industry,* develop the best Lauxite MF 300 or Lauxite MF 300-urea combination for your needs.

Address: MONSANTO CHEMICAL COMPANY, Plastics Division, Room 5201, Springfield 2, Massachusetts. (Monsanto in Canada: Montreal.)

Lauxite: Reg. U. S. Pat. Off.

Adhesives for Western Industry

Monsanto's Western Division manufactures and supplies a complete line of plywood and woodworking adhesives for western industry from conveniently located plants at Seattle, Washington and Santa Clara, California.

Phenolic, melamine urea, resorcinol, soybean, and casein glues are included in this complete line for plywood production, edge gluing, and general assembly gluing.

For information on these adhesives, and on the entire line of Monsanto adhesives sold west of the Rocky Mountains, write to:
MONSANTO CHEMICAL COMPANY, 911 Western Ave., Seattle 4, Washington.

MONSANTO

SERVING INDUSTRY...WHICH SERVES MANKIND

viding quick, economical "make-ready" for finer finishing where needed. The new unit has a built-in water attachment for wet sanding enabling rapid removal of material at low cost. Weighing 4½-lb., the compact unit fits snugly into the palm of the hand and requires air consumption of only 5½ .to 7 cu. ft. per minute.

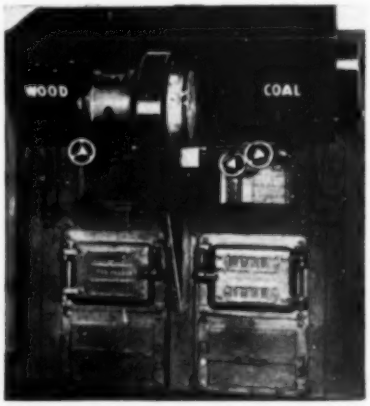
New Tenoning Machine

A Model RFP 100 heavy production tenoning machine, manufactured by Helma-Nohoma of Wormerveer, Holland, is now available from Leonard Rodier Co., Dept. WP, 336 W. 71st St., New York 23, N. Y. The machine is capable of cutting in a single operation either oblique, round or straight tenons that can be slanted in any direction. Size of tenons, turned out in 6 to 7 seconds, is 4 in. in length, 3 in. thick and 7 in. wide. The single cutterhead revolves at 6500 rpm and is mounted on a round disk.

The table can be tilted to 35 degrees and is fitted with an adjustable stop mounted on a rod for stock lengths up to 25 in. A built-in 2 hp. motor drives the cutterhead and a 1/10 hp motor revolves the shaping disk.

New Sharpening Tool

A combination grinder and hone that enables putting a perfect edge on almost any woodworking tool is available from Atlas Press Co., Dept. WP, 5028 N. Pitcher St., Kalamazoo, Mich. Grinder turns 3,000 rpm, oilstone speed is reduced to 110 rpm by a worm and worm gear. Grinding wheel is 6-in. diameter medium grit aluminum oxide and oilstone is 5-in. diameter, sandwich type, with grits of 120 for whetting and 320 for final honing. Oilstone is instantly reversible. Send for illustrated folder.



New Wood Stoker

A wood stoker that can be arranged to burn wood only, wood and coal, or coal only is available from the American Coal Burner and Wood Stoker Corp., Dept. WP, 18 E. Erie St., Chicago, Ill. Called the Flo-Matic

Boring Bill says -
"This Root Multiple Borer is Really Versatile"

The popular Style CH Hydraulic Feed Multiple Borer is exceptionally versatile for any wood-working plant. The spindles can be placed anywhere on the machine for boring straight-line rows of holes or patterns of irregularly spaced holes on close or extended centers.

WRITE FOR BULLETIN 110.

FULL DETAILS IN BULLETIN 191. WRITE TODAY.

B. M. ROOT CO. | YORK, PA.

JUST ADDED:

4 MORE DRY KILNS. Our Capacity now 1¼ Million Bd. Ft. per Charge.

WINTER'S HERE . . Loggers are Coming Out of Woods . . . BUT WE NEVER STOP MANUFACTURING Ponderosa and Sugar Pine from our own large resources . . top quality kiln-dried interior trim, jambs, frames, incense cedar venetian blind slats, glued-up panels, cut stock, box shook . . .

WHAT YOU WANT, WHEN YOU WANT IT. RALPH L. SMITH IS YOUR DEPENDABLE SOURCE OF SUPPLY.

Mixed Cars to the Trade, Our Specialty

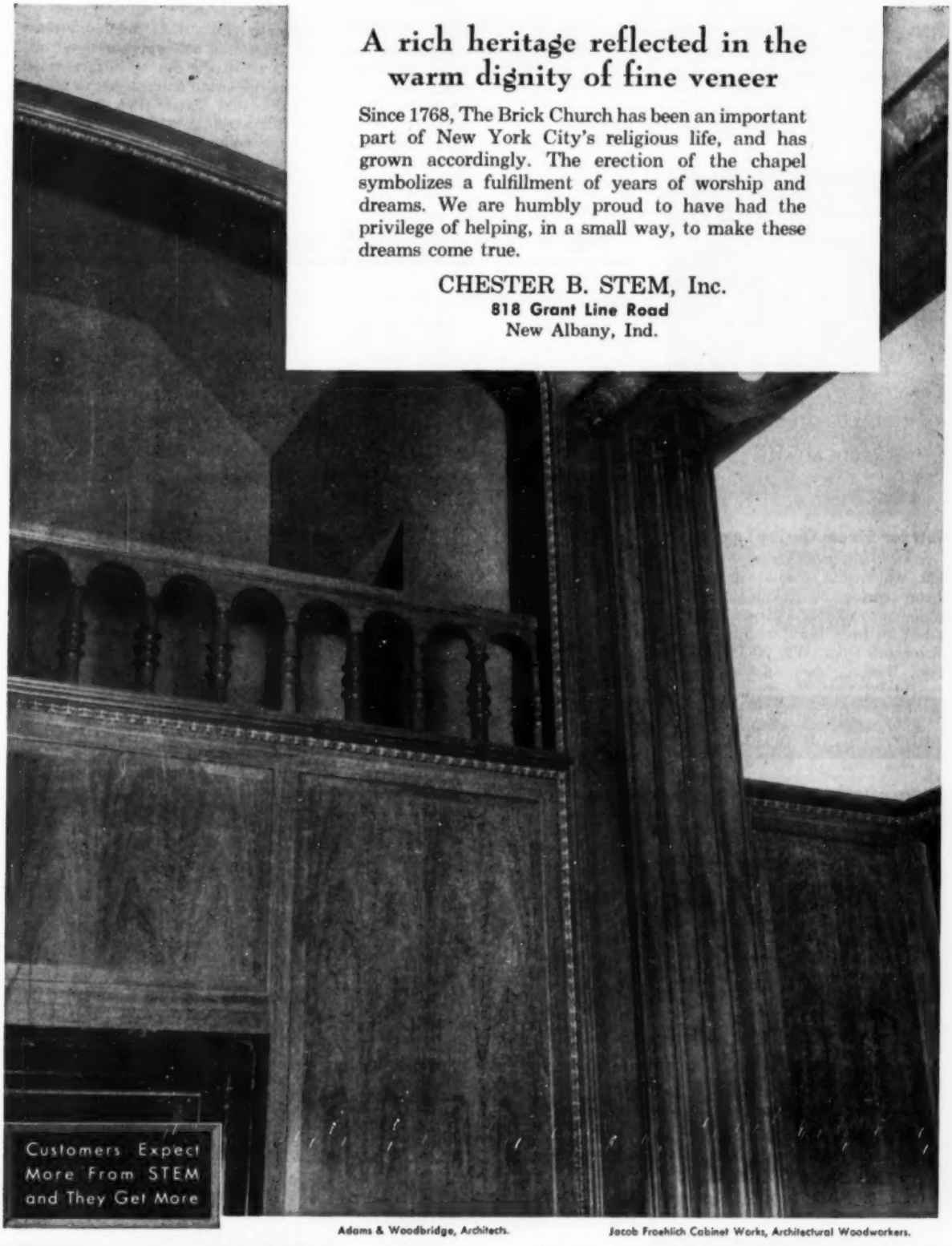
The Ralph L. SMITH Lumber Company

Mills at Anderson and Castella

Sales Office at Anderson, California

WPA Western Pine Association

SUGAR PINE....PONDEROSA PINE....DOUGLAS FIR
WHITE FIR....INCENSE CEDAR



A rich heritage reflected in the warm dignity of fine veneer

Since 1768, The Brick Church has been an important part of New York City's religious life, and has grown accordingly. The erection of the chapel symbolizes a fulfillment of years of worship and dreams. We are humbly proud to have had the privilege of helping, in a small way, to make these dreams come true.

CHESTER B. STEM, Inc.
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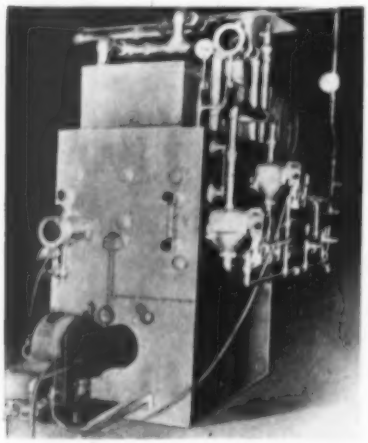
Customers Expect More From STEM and They Get More

Adams & Woodbridge, Architects. Jacob Froehlich Cabinet Works, Architectural Woodworkers.

These higher grades of
VENEER and LUMBER
manufactured and available at all times

American Walnut . . . Avodire . . . Hard Maple . . . White Ash . . . Yellow Poplar . . . Cherry . . . Indiana Soft Textured White and Red Oak . . . Butternut . . . Prima Vera . . . Honduras and African Mahogany . . . Knotty Pine . . . Teak . . . English Yew . . . Satinwood . . . Zebra Wood . . . Special logs and thicknesses for special places . . . lumber from modern dry kilns.

Fyr-Feeder, the unit uses a spray-spread system for introducing hogged fuel into the furnace as a departure from the conventional "Dutch oven" and "pile" burning of refuse fuels. More capacity and greater efficiency is claimed.



Unit for Steam Curing Lumber

A new, improved steam generating unit which has many uses in the steam curing of products, is now available to lumber and woodworking industries from Burkhart Engineering Associates, Dept. WP, 30 Huntington Ave., Boston, Mass. Known as the Consolidated Duo Boiler, the steam generator can produce both saturated and superheated steam in the proper quantities to insure a closely controlled steam quality in curing lumber products.

Initially, the unit furnishes a saturated steam of around 240°, then it produces a superheated or very dry steam as high as 350°. Saturated steam on the initial set prevents case-hardening or drying out of surface wood while the inside remains wet or green. Superheated steam then is able to absorb moisture within the kiln and give a uniform cure to the product. Units are self contained, can be fired with either gas or oil.

NEW CATALOGS and LITERATURE

Shaper Stand Catalog Sheet

A two-color, single sheet on the new Redco Shaper Stand has just been issued by the Redco Tool Division, Dept. WP, of the Red Lion Co., Red Lion, Pa. This fully illustrated catalog sheet describes the design and construction features of the Redco Shaper Stand and gives complete specifications. Another section is devoted to simplified set-up instructions, complete with four illustrations and nine steps to be followed in the set-up.

New Tool Catalog

A new 20-page catalog of tools for mortising, boring and routing, No. 34-M, is available from Greenlee Tool Co., Dept. WP, Rockford, Ill. The catalog clearly illustrates and describes in detail a complete line of hollow chisels and bits, machine bits and drills, router bits, dowel bits, plug cutters, and countersink bits and drills. It also includes sharpening instructions and a boring chart for wood screws.

Wide Lumber Making Described

Information about the Linderman automatic wide lumber fabrication process used in the manufacture of boxes and shooks and in the building construction field is contained in a 4-page bulletin (2M-1-54) available from Muskegon Machine Co., Dept. WP, Newburgh, N. Y.

The bulletin contains production tables based on a 50-min. production hour which tabulate chainspeeds,

BEHIND THE MILLS
THE CONNOR TIMBER STANDS

Over 115,000 acres of hardwood timber, assuring our customers of a backlog of choice Northern Hardwoods.

SPECIALIZING IN:

cut to size furniture plywood
cupboard doors
basswood bending panels
die boards
game boards
hardwood lumber cores
northern veneers
glued-up lumber dimension
school furniture plywood

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BIRCH, MAPLE, ASH, OAK, BASSWOOD, ELM, MAHOGANY AND WALNUT

UNDERWOOD VENEER COMPANY
A Division of
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WAUSAU WISCONSIN

DEPENDABLE
HARDWOOD
DIMENSION

• rough, semi-finished, or finished
• lumber or parts
• solid or laminated
• corestocks, blocks
• wood-and-plastics
• Gam-en-wood

Engineered Wood Parts in Southern and Appalachian Hardwoods, Walnut, or Mahogany.

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LEADING SOURCE FOR
Wholesale Pacific Coast Lumber
specialists in
• California Redwood
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• Ladder Rails
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• Ponderosa Shop & Uppers
• Upland Hemlock
• Douglas Fir Clears
• Western Red Cedar
• Fir Plywood

look to wallace for lumber!
don b. wallace inc.
GUARDIAN BUILDING, DETROIT, MICH.
WOODWARD 3-0862

number of pieces and joints required for stock lengths from 10 in. to 97 in. inclusive. A general information section lists all machine specifications and weights for the unit which joints, blues, sizes and assembles square-edged lumber into panels in one continuous operation.

Boring, Mortising Bulletin

A new two-color, 4-page bulletin (No. 199), describing recent improvements on its Model G250 Foot Feed Boring and Mortising Machine is available from B. M. Root Co., Dept. WP, York, Pa. The bulletin explains advanced features and design of the utility borer and mortiser and lists technical data and extra equipment available.

Saw, Knife Sharpener Catalog

A new 1954 Hanchett catalog is now available from the Hanchett Manufacturing Co., Dept. WP, Big Rapids, Mich. It contains sections on: band saw, band resaws and gang saw sharpening and conditioning machines and equipment; circular saw sharpeners and grinders; saw swages and swage sharpeners; miscellaneous equipment; metal saw sharpening equipment; knife grinding machines in a wide variety of models, sizes and capacities.

Steam Humidifier Reprints

Two reprints which state the case for trouble-free, low cost steam humidification are available from Armstrong Machine Works, Dept. WP, 909 Maple St., Three Rivers, Mich. Ask for "The Case for Steam Humidification," a clear explanation of the advantages and costs of steam for humidification, and for "From Hallowe'en to Easter," the story of humidification at the Mersman Bros. Corp.

Carbide Tipped Tool Bulletins

Specifications and prices on carbide saw tips are available in Saw Tip Catalog Sheet WW53-1 from Carboloy Dept. of General Electric Co., Dept. WP, 11195 E. 8 Mile Ave., Detroit 32, Mich. Ask also for Bulletin GT-206A on maintenance and operating practices for tungsten cemented carbide tools.

Saw Blade Catalog

Carbide tipped saw blades which average 160 hours before resharpening are described in Karbide King's new K-53 catalog, available from DeLuxe Saw & Tool Co., Dept. WP, 415 E. Commerce St., High Point, N. C. Low cost operation and high quality work are claimed for these long life blades.

General, Special Saw Blades

Information on carbide-tipped saw blades for a wide range of jobs is contained in a general purpose catalog available from Delta Power Tool Division of Rockwell Mfg. Co., Dept. WP, 668B N. Lexington Ave., Pittsburgh 8, Pa. Also available is a catalog containing comprehensive data on Delta's carbide-tipped blades specifically designed for radial saws.

Dimension Booklet

A new booklet on wood dimension has been prepared by Morgan Mfg. Co., Inc., Dept. WP, Black Mountain, N. C. It tells of the plant's diversified production of wood dimension for furniture makers and other industries.

Furniture Finishing Booklet

The use of 3M production paper belts for stroke sanding white-wood panels is told in a new booklet, "3M System of Furniture Finishing," available from Minnesota Mining & Mfg. Co., Dept. WP-24, St. Paul 6, Minn. Clean sanding with a minimum of pressure is claimed for the belts.

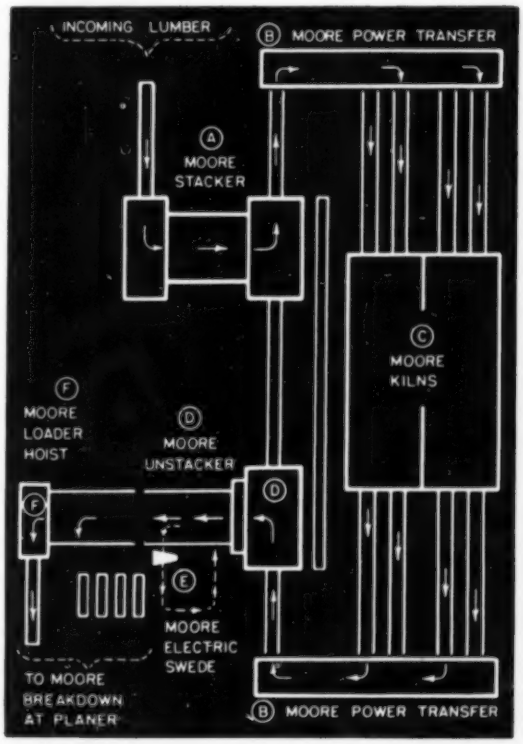
Cutter Head Catalog

A new cutter head catalog has recently been published by Jones & Orth Cutter Head Co., Dept. WP, 385 S. Main, Memphis 3, Tenn., or

Moore Stacker-Drying-Unstacker Systems-

The 1954 "Pay-Off" Combination for

Reducing Costs



Study this typical layout — it may show where a Moore Stacker, Drying or Unstacker System can be utilized profitably in your plant.

Reduce your costs the Modern Moore Way, by power handling lumber by courses and loads, and seasoning with Moore Cross-Circulation Kilns.

Let us show how these cost-saving advantages can be utilized by you now. Write today—no obligation.

MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers

JACKSONVILLE, FLORIDA · BRAMPTON, ONT. CANADA · VANCOUVER, B. C. CANADA · NORTH PORTLAND, OREGON

Box 3064, Seattle 14, Wash. High quality work at low net cost is a feature claimed for these heads. Specially designed cutter heads are also available.

Adhesives Booklet

Answers to wood bonding problems are given in a new booklet describing "Penacolite" adhesives, available from Koppers Co., Inc., Chemical Division, Dept. WWP-24, Koppers Bldg., Pittsburgh 19, Pa. Problems of strength, durability, permanence, application and curing, versatility and storage are discussed relative to this resorcinol, waterproof, room temperature-setting adhesive.

PRODUCTION GAUGES

Continued from Page 21

room time and other factors were made before employing the gauges.

The piece was analyzed to determine permissible tolerances. The gauges were designed to maintain those tolerances—plus or minus .010 in. around drawer fronts, with the same tolerance figured for the B.S. dimension of the parting rail and the distance between mortise holes in the post. The gauges had the unusual feature of combining both the machine setup tolerance (plus or minus .003 in.) and the acceptance limits (.010 in.).

The gauges were used during a regular production run. Records were kept of the time spent machining the parts and on assembly in the cabinet room. Without an exception, the parts cut to the gauges were more accurate than those cut without gauges. Many other machine room savings were indicated which would be almost impossible to evaluate. An example would be the savings in material and labor on parts which would have to be remachined or wasted because they had been cut to the wrong dimensions.

In the cabinet room or assembly department, easier assembling and less work for the casefitters were the principal savings. And the finished product was improved in appearance.

"Fine," you say, "but how much would it cost to install such a system of gauging?" For a short run, it would seem to be expensive, but the research team believes that on a long-term basis it would probably be no more expensive than buying steel tapes, rules, etc. Assuming an average plant of 224 workers with 70 in the machine room averaging 104.1 cents per hour and 43 in the cabinet room averaging 101.6 cents, and assuming 10 different suites in the line, they estimate a need for about 1,000 gauges, one for each 1/16 in. between 3 in. and 72 in.

At an average of $9 each, the total gauge cost would be $9,000. They should last about 10 years and would be depreciated on that basis. One man would be needed to operate the tool room for checking the gauges in and out as needed, and about 600 sq. ft. of space would be charged against the tool room. From these estimates and the labor savings indicated, the annual cost comparison would be about as follows:

Cost of Individual Gauge System

Capital recovery—	
Depreciation (10 years)	$900.
Interest (6%)	297.
Tool Room Labor	3,000.
Repairs and Replacement	150.
Space (@ 50c per sq. ft.)	300.
	$4,647.

Labor Savings

8% Direct Cabinet Room Labor	$6,990.
2 Casefitters	4,456.
	$11,446.

This would make the investment for an individual gauge system very profitable for a plant of this size. The "break-even point" would be 18 men in the cabinet room.

If a system of this kind can be rec-

NO OTHER WOOD
Does So Many Jobs So Well!

The unique ingrown properties of California Redwood—dimensional stability, workability, strength, insulating value, paint retention, glue-holding power, durability—are the very specifications wood workers look for in their materials.

No wonder, then, that Redwood is playing an increasingly important role in the finished products of wood working plants from coast to coast.

HEXAGONAL GARDEN BOXES are made of Redwood to resist decay, termites, under conditions favoring both.

DISPLAY SIGN illustrates Redwood's workability, natural beauty, ability to resist weathering even when unpainted.

NOVEL DUCK BLIND of strong, lightweight Redwood will give long years of service, even though subject to intermittent wetting and drying.

Three such products are shown on this page. For specific information on Redwood as applied to *your* product, write the California Redwood Association, 576 Sacramento St., San Francisco 11.

The Association, an information center for Redwood, includes sixteen leading Redwood lumber mills: Pacific Lumber Co., Rockport Redwood Co., Simpson Logging Co., Union Lumber Co., Warm Springs Redwood Co., Willits Redwood Products Co., Wolf Creek Timber Co., Inc., Arcata Redwood Co., Coastal Plywood & Timber Co., Eureka Redwood Lumber Co., Hammond Lumber Co., Holmes Eureka Lumber Co., Hulbert & Muffly Lumber Mill, M & M Wood Working Co., Northern Redwood Lumber Co., The Pacific Coast Co.

ommended for the larger plant with an engineering department, what about the smaller plant without such a department? The answer here lies in the use of adjustable gauges such as Henry Pittman's men are using at Morgan Mfg. Co.

For the research project a gauge was designed with a dial indicator graduated in 1/16 in. To obtain measurements even more accurate than this, it was fitted with a second dial indicator graduated in .001 in. The gauge itself is a steel bar, 1½ x 2 in., 5 ft. long and mounted on a 5 in. "I" beam. It has slots graduated accurately at 1 in. intervals with a groove milled out down the center. A cylindrical stop with a steep pin through the center fits in the groove and the pin goes in the slots, positioning the stop exactly.

Thus, very little surface contact is made between the bar and the stop, and the dust problem so common to woodworking plants is eliminated.

Lenoir Chair Co.'s Plant 2 at Newton, N. C., was selected as the most suitable site for the adjustable gauge test. A low-priced straight-line modern chest was picked as the test case. The gauge was set up between two double-end tenon machines where it would be near the variety saws and other machines on which accuracy depended. Tolerances were the same as in the individual gauge test—a set-up tolerance of plus or minus .003 in. and a working tolerance of plus or minus .010 in.

In this test, use of the gauges resulted in no apparent time savings in the machine room, but there was a marked improvement in quality and savings of material and labor resulted from the elimination of parts made to the wrong dimensions. Again, savings were greatest in the cabinet room. These were two-fold: (1) Decrease in work of casefitters, and (2) overall labor savings.

Compared to the savings, the cost of this system of gauging is regarded by the research team as negligible. The gauge cost $350, no tool room space was needed, and no extra personnel. The adjustable gauge cannot be expected to last as long as the individual gauges because of the more extensive use and the possibility of damage to the dial indicators, so it is assumed that at least two gauges will be needed.

Here's how costs and labor savings are calculated on the basis of this test experience, assuming a factory with 150 employees, 29 in the cabinet room, and an average cabinet room wage of 101.6 cents per hour:

Cost of Adjustable Gauge System

Capital recovery—	
Depreciation (2 gauges —5 years)	$140.
Interest (6%)	25.
Repairs and Replacement of Indicator	50.
	$215.

Labor Savings

8% Direct Cabinet Room Labor	$4,732.
2 Casefitters	4,456.
	$9,188.

With potential savings of this size from such a small investment, the installation of such a system of gauging would seem to be a foregone conclusion for any plant, large or small. Nevertheless, as the researchers point out, it is not a "cure-all" for every assembly problem.

Directions as to tolerances, clearances and other questions must be issued by the office, the engineering department or the superintendent, and not come from the men on the job. Specifications must be "billed out," not just "cut light or heavy" as is done in so many plants today.

A technically trained man should be hired (if one is not already available) to set up and operate either system of gauging—on full time at first, but later available to help install other management controls.

for a fabulous finish . . .
Jewel Brand
ABRASIVE BELTS
In a wide range of grits and widths for sanding, smoothing, polishing all types of wood products.
ABRASIVE PRODUCTS, INC.
553 Pearl Street
South Braintree 85
Massachusetts

DEBARKING AND CHIPPING

Continued from Page 23

suitable for paper mill chips, the slabs, edgings and trims have to be relatively free of bark. This can be accomplished in one of two ways: First, by barking the whole log; second, by barking only the waste. Both methods have been tried, but the barking of the whole log is more feasible.

There are two methods of barking the whole log. One method, extensively used on the West Coast, is hydraulic debarking. The other method utilizes mechanical debarkers.

In the selection of either the mechanical or the hydraulic debarker, the capacity should be determined in lineal feet of average size logs rather than board feet measure. While a debarker of a certain size may be entirely suitable for a mill cutting 10,000 bd. ft. per hour with an average of 80 bd. ft. per log, it might not be sufficient for a mill of the same capacity but with a smaller log average.

If expansion in future production is indicated, the master plan should provide for additional debarkers. Above all, the layout should anticipate future expansion of the sawmill.

In the preparation of the layout and in the selection of the chippers, screens, etc., the paper mill that will ultimately purchase the chips should be consulted to obtain essential information pertaining to chip size and specification, as well as to the method of transportation which will fit the paper mill's unloading facilities.

After the preliminary layout is made, the number of men required to operate the facilities should be determined. At least one man should be included in the operating personnel whose primary responsibilities are to lubricate and maintain the installation.

A detailed cost estimate of the preliminary layout should then be made, including all material, labor, electrical wiring, compressed air, and the remodeling of existing structures.

Only after the exhaustive studies and investigations are concluded can calculations be made to determine the feasibility of installing log handling, debarking and chipping facilities at any sawmill. These calculations are:

1. Multiply the number of cords of chips from the utilization chart previously prepared (deduct any required for fuel) by the price per cord (f. o. b. sawmill). This will give the gross returrn from chips.
2. From the gross return, subtract
   (a) Additional labor to operate the following items of operating costs: facilities.
   (b) Additional electric power required.
   (c) Maintenance of the facilities, including labor and materials.
   (d) Miscellaneous expenses.
   (e) Additional fuel, if any, to augment boiler fuel.
   (f) Amortization of investment.

The result is the net return from the operation before taxes.

There are other gains from installing such facilities, on which it is difficult to place a dollar value, such as:

1. Reduction in labor required to clean the sawmill.
2. Reduction of saw filing and other equipment maintenance.
3. Upgrading of lumber.

From this discussion it is obvious that log handling, debarking and chipping pose a complex problem. To realize the potential benefits, thorough studies, examinations and reviews are necessary. This applies as much (if not more) to small operations as to large mills. The smaller the operation, the closer is the margin of profit.

Editor's Note.—*The foregoing paper was presented by the author at a recent meeting of the Deep South Section, Forest Products Research Society, at Lufkin, Texas.*

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HOGGING EQUIPMENT

M & M Wood Hogging equipment is built in many types and sizes to reduce slabs, edgings, blocks, veneer, bark and other waste to usable size chips. Write us for complete information about hogging equipment, and how it will help with your wood disposal problem.

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If you have a 20,000 to 35,000 board foot sawmill, you cannot afford any longer to burn your waste. Soderhamn's new D-3 Barker and modern Slab Chipper can be installed in your mill for only $25,000. These performance proved machines will pay for themselves in less than a year and make clear profits for you from that time on.

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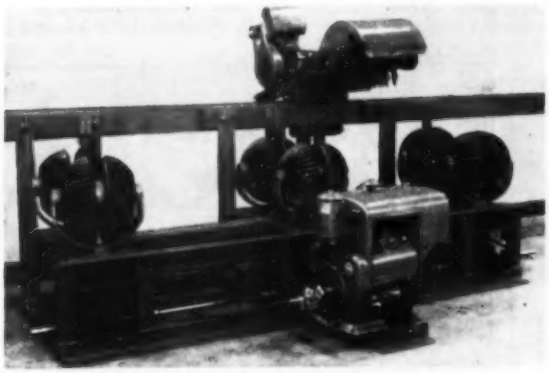

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(Patent pending)

This new, low cost barker has a maximum feed speed of 40 linear feet per minute. Handles 10-foot lengths and up. Log diameter 5" up to 36". Gasoline or 30 H.P. electric power. The barker is part of the conveying system and therefore can be installed without any additional conveyors.

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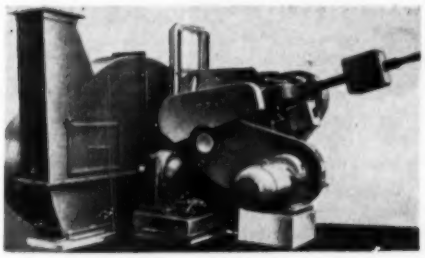
Note the exclusive field proved feedwork—a must to produce uniform chips from all kinds of sawmill waste. Producing 5 cords of chips per hour at 60 H.P.

For mills cutting more than 35,000 board feet, use Anderson Barkers and larger models of the Soderhamn Slab Chipper and Screens.



For specifications and complete information about Soderhamn wood waste recovery equipment, including Barkers, Chippers, Chip Screen, Re-Chippers, and Swedish Gang Mill equipment, wire phone or write

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SODERHAMN, SWEDEN SINCE 1864 TALLADEGA, ALABAMA

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NAMES and EVENTS

Dimensioneers Elect Rozzell

George M. Rozzell of the E. A. Stewart Lumber Co., Texarkana, Tex., was elected president of the Dimension Manufacturers Association at its 24th annual meeting recently in New Orleans. He succeeds Harold Moser, Gamble Bros., Inc., Louisville, Ky.

Other officers named: George T. Stapleton, King Lumber Industries, Canton, Miss., vice-president; J. Edgar Kennedy, Nashville headquarters, secretary-treasurer and managing director; Omar Hilton, Bradley Lumber Co., Warren, Ark., and Carlton Smith, Carlton Smith Industries, Memphis, directors for one year; Robert K. Morgan, Morgan Mfg. Co., Black Mountain, N. C., and J. B. Edwards, Hillyer Deutsch Edwards, Inc., Oakdale, La., directors for two years; W. G. Soderquist, Williams-Brownell, Inc., Asheville, N. C., and Russell A. Goodrich, E. L. Bruce Co., Little Rock, directors for three years.

Highlight of the meeting was an address by G. Maurice Hill, vice-president in charge of production, Drexel Furniture Co., Drexel, N. C., on "A Furniture Manufacturer Looks at the Dimension Industry." Leo V. Bodine, executive vice president of the National Lumber Manufactures Association talked on "Reaching for the Future," and C. A. Rishell of Timber Engineering Co. spoke on hardwood research and showed the new movie, "Coming Out of the Woods."

Vonderbrink Walnut Prexy

Vonderbrink

Louis Vonderbrink, president of P. V. Shoe Walnut Co., Cincinnati, O., has been elected president of the American Walnut Manufacturers Association, succeeding R. K. Stem of Chester B. Stem, Inc., New Albany, Ind. The election took place at the association's recent annual meeting in Chicago.

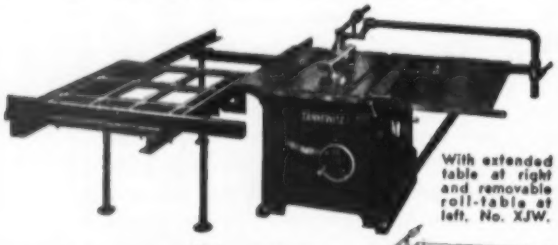
Other officers elected were – Vice-President, R. E. Hollowell, Jr., director of Pierson-Hollowell Co., Inc., Indianapolis; Treasurer, J. B. Petrus, Jr., Midwest Walnut Co., Council Bluffs, Ia.; Secretary-Manager, Charles H. White.

Now in its 42nd year, the AWMA was organized to develop export and domestic markets. Chief function is to assist walnut lumber and veneer industries in the procurement, finishing and merchandising of walnut products.

Appalachian Group Meets

Confidence in the future was expressed by speakers at the Appalachian Hardwood Manufacturers annual meeting recently in Cincinnati, keynoted by President J. P. Hamer of J. P. Hamer Lumber Co., Kenova, W. Va. Other speakers included George M. Fuller, vice-president, National Lumber Manufacturers Association; C. A. Rinehimer, president, Architectural Woodwork Institute of America and head of Rinehimer Bros. Mfg. Co., Elgin, Ill.; G. Maurice Hill, Drexel Furniture Co., Drexel, N. C.; and Henry H. Willins, secretary-treasurer, National Oak Flooring Mfrs. Association.

Officers elected – President: J. P. Hamer; Vice-President: Norman J. Warner, Warner Lumber Co., Asheville, N. C.; Directors: Donald R. Mower, Mower Lumber Co., Charleston, W. Va.; F. L. Dakin, Cherry River Boom & Lumber Co., Scranton, Pa.; C. R. Wilson, Inter-Mountain Coal &



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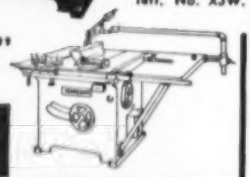

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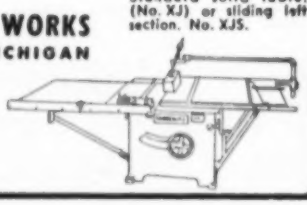

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Directors at large – Charles Bringardner, Martins Fork Lumber Co., Lexington, Ky.; E. D. Currence, Elk River Coal & Lumber Co., Swandale, W. Va.; R. H. Ely, Ely-Thomas Lumber Co., Camden-on-Gauley, W. Va.; T. M. Millett, Millett Hardwood Lumber Co., Louisville; John C. Turner, W. M. Ritter Lumber Co., Columbus, O.; E. P. Vaughn, Vestal Lumber & Mfg. Co., Knoxville, Tenn.; John B. Veach, Hardwood Corp. of America, Asheville, N. C.

Directors, Forestry Division – T. J. Mitchell, Poinsett Lumber & Mfg. Co., Pickens, S. C.; F. H. Halstead, New River Co., Mt. Hope, W. Va.; C. G. Queen, Ford Motor Co., Peabody, Ky.; W. R. Graham, Pocahontas Land Corp., Bluefield, W. Va.

Jobbers Change Name

The Woodwork Jobbers Service Bureau has changed its name to Northern Sash & Door Jobbers Association, according to President William C. A. Costello, Gloucester City, N. J. The association, which has offices in Chicago, comprises 92 sash and door warehouse jobber companies in 17 north, central and eastern states. Other officers of the 18-year-old group: Clarence M. Kimball, Detroit, vice-president; Philip S. Hill, Chicago, treasurer; and Carl W. Nagle, Chicago, newly announced secretary who replaces Adolph Pfund, retired Jan. 1.

Setzer Is Wooden Box Head

C. F. Setzer

Curt F. Setzer, director, Glenco Forest Products, Inc., Sacramento, Calif., was elected president of the National sociation during Wooden Box Asits annual meeting recently in Chicago. He succeeds R. F. Miles, president of Rathborne, Hair & Ridgway Box Co., Chicago. Setzer has been active in the California box and shook industry for more than 30 years. He and two sons have box plants at Sacramento and Elk Creek and a sawmill at Greenville, Calif.

Reelected to serve during 1954 were: L. J. Chaffee, Chaffee Bros. Co., Oxford, Mass., vice-president; J. D. Bronson, Cascade Lumber Co., Yakima, Wash., vice-president; C. D. Hudson, Washington, D. C., executive vice-president; and P. John Galbraith, Philadelphia, treasurer. Newly elected to a vice-presidency was Thomas Munroe, Moraine Box Co., Dayton, O.

Prevailing sentiment during the 55th annual meeting was that 1954, while one of adjustment, will present opportunities for developing new markets and consolidating present ones.

Dry Kiln Demonstration Set

A practical training demonstration on the kiln drying of wood will be held at the U. S. Forest Products Laboratory, Madison, Wis., March 29-April 9. Enrollment will be limited to 30 men so that individual attention can be given each class member, states Raymond C. Rietz, chief of the laboratory's division of timber physics.

Subjects to be covered include basic principles of air drying and kiln drying, types of dry kilns, kiln equipment, kiln operation, kiln tune-up, and moisture control during storage and production. Special emphasis will be placed on new, accelerated schedules developed at the laboratory which can reduce drying time 20 to 35% in many cases. More than 700 men have

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attended demonstrations held since 1946. Further information, enrollment blanks and fees can be obtained from the Madison laboratory.

So. Pine Meeting April 5-7

The Southern Pine Association will hold its 39th annual meeting April 5-7 at the Roosevelt Hotel, New Orleans, with emphasis being placed on marketing and distribution. An industry-wide meeting of Southern Pine manufacturers and others interested in the welfare of the industry is also scheduled for April 6 to discuss legislative problems and decide on the course of action relating to specific measures.

So. Hardwood Mfrs. to Meet

The annual meeting of the Southern Hardwood Producers, Inc., will be held Mar. 4-5 at the Roosevelt Hotel, New Orleans. The National Lumber Exporters Association will convene concurrently.

Continuing the policy of recent years, the meeting will cover not only the national situation of interest to hardwood manufacturers but will also devote considerable time to subjects directly related to the manufacture and sale of southern hardwoods.

An outstanding event will be the second annual presentation of the "Hardwood Industry Man-of-the-Year Award," presented last year to John B. Veach, president of the Hardwood Corp. of America, Asheville, N. C. The National Lumber Manufacturers Association committee on Hardwood Research Administration will also meet to finalize a hardwood industry sponsored program for the coming year.

Western Dry Kiln Meet Set

The Redwood Seasoning Committee will be host to the 6th annual meeting of the Western Dry Kiln clubs to be held at Eureka, Calif., May 13-15. The three-day session will include a day-long field trip through several nearby redwood mills, with special emphasis on drying operations.

Technical discussions will center around the topics of "How Wood Dries" and "What's New in Kiln Drying." Speakers will include Prof. Emanuel Fritz, U. of California; Dr. Harvey Erickson, U. of Washington; Lief Espenas and Robert Graham, Oregon Forest Products Laboratory; John McMillen, U. S. Forest Products Laboratory; Herb Geisenheyner, Honolulu; and Harvey Rich, New England Dry Kiln club.

Home Builders Elect Hughes

R. G. "Dick" Hughes of Pampa, Tex., was elected president of the National Association of Home Builders at its 10th annual convention held recently in Chicago. He succeeds Emanuel M. Spiegel of New Brunswick, N. J. Nathan Manilow of Chicago was elected first vice-president for 1954. Other officials: Paul Burkhard, Glendale, Calif., second vice-president; V. O. Stringfellow, Seattle, treasurer; Franklin L. Burns, Denver, secretary. More than 20,000 attended the convention.

Veteran Desk Maker Retires

B. H. Talbert

Jess Wiltshire

B. H. Talbert, veteran of 50 years in desk manufacturing, retired Feb. 1 as plant manager at Imperial Desk Co., Evansville, Ind. Succeeding him was Jess Wiltshire, Talbert's assistant in charge of production and quality control who has been with the firm since 1937.

Talbert, first employee at Imperial

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Countersink precisely as you want to . . . swiftly, smoothly with GREENLEE Adjustable Countersinks which let you set the lead drill at whatever boring depth desired. Wide range of sizes . . . three types: (1) with extension-lip type counter for boring flat-bottomed holes, (2) with beveled cutting edges corresponding to the taper of flat-head screws and (3) with beveled cutting edges to countersink for screw heads below the surface of the wood. Write for facts. Greenlee Tool Co., 2153 Herbert Avenue, Rockford, Illinois.
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GROOVING TOOLS FOR TIMBER CONSTRUCTION

Desk Co. in 1912, saw the plant start in a one story building and helped plan four expansions over the 42-year period as it gained its present

Elected Dean Co. Director

C. R. Cook

C. R. "Rod" Cook, furniture furniture consultant and for years chief of the furniture division at Sears, Roebuck & Co., was elected a director of the Dean Co., Chicago, at the firm's annual meeting held during the recent winter market at the American Furniture Mart.

Other members of Dean Co. board: Thomas A. Dean, chairman; T. J. "Ted" Connelly, president and treasurer; Charles D. Dean, vice-chairman, executive vice-president and treasurer; James S. Vaughan, vice-president in charge of Olympic Mfg. Co. Division of the Dean Co.; J. G. Goldston, Sr., and Bolton Sullivan, president of Skil Corp.

"Where to Buy" Directory Out

The 1954 "Where to Buy" directory of the West Coast Lumbermen's Association, being distributed to 37,000 lumber users, is available without charge from the West Coast Lumbermen's Association, 1410 S. W. Morrison St., Portland 5, Ore. Information on capacities, equipment and special facilities, species and lumber items manufactured, augment the data on names of officials and addresses. The famous large and long timbers produced in the West Coast region are shown with the maximum sizes available from each mill.

West Tells Tree Farm Story

The beauty and glamor of West Coast tree farms has been captured in a new full-color booklet released by the Industrial Forestry Association for general distribution. More than 12,000 copies were mailed out in the first week of publication, according to W. D. Hagenstein, recently elevated from forest engineer to managing director of the association.

Free copies of this eight-page booklet are available from the Industrial Forestry Association, 1410 S.W. Morrison St., Portland 5, Ore. There are now 203 tree farms in the Douglas fir region of western Washington and Oregon, with a total area of 4,266,633 acres. Thirteen new tree farms totalling 10,440 acres were recently certified, and four additions to existing tree farms added another 5,717 acres.

Firm Changes Name

The former Blair-Vermont Plywood Co. has changed its name to Owens-Illinois Plywood Co., according to an announcement from Harry C. Fidler, general manager. The new name indicates the association with Owens-Illinois Glass Co. of Toledo which began in 1948 when Blair-Vermont became a wholly owned subsidiary.

Make Hardwood Faced Panels

Production of hardwood faced plywood has been announced by Associated Plywood Mills, Inc., Eugene, Ore. The new department is established at the Willamina, Ore., plant, manufacture of the hardwood faced panels following a long period of research and experimental work.

The company is producing solid core panels faced with veneers of birch and Philippine mahogany in sizes up to 4x8 ft., and in 1/4 and 3/4 in. thickness.

New Movie on Spray Painting

A black and white, sound 16 mm. movie, "Making the Most of the Spray Painting Method," has been produced by the DeVilbiss Co., Toledo, O.,

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1. Automatic, accurate trouble-free.
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3. Costs less than other controlled humidification.

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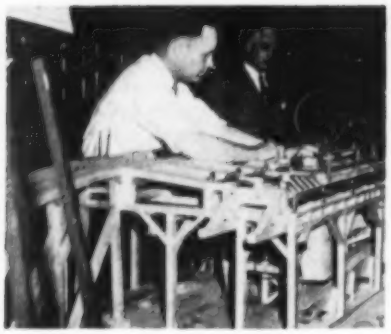

See Latest Machines in Action at 1954 Woodworkers' Industry Show

CIVIC AUDITORIUM GRAND RAPIDS, MICH. MAY 5, 6, 7, 1954

Biggest and Best Roundup of Machines, Equipment and Materials to Be Staged During 8th National Meeting of Forest Products Research Society

The swing today is to modernization—and to modernize you have to *mechanize*. That means new and better machinery and equipment designed to help you speed up output, produce better finished goods more efficiently, and make more money. It means using new and better materials, too—all kinds of wood processing and allied materials.

That's why it will pay you to come to the 1954 Woodworkers' Industry Show at Grand Rapids. You'll see the newest and finest machinery for all woodworking purposes—*much of it in actual operation.*

You'll see every type of processing material and allied product—adhesives, abrasives, wood treating chemicals, finishing materials, hardboard, chipboard and many others.

In short, you'll be able to examine, compare and judge the products you need at first hand.

Endorsed by the Association of Manufacturers of Woodworking Machinery, the 1954 show will be held under the same roof and at the same time as the 8th national meeting of the Forest Products Research Society. If you're planning to attend the FPRS sessions, your trip to Grand Rapids will pay you double dividends if you'll set aside ample time to visit the more than 100 exhibits. Even if you're not a FPRS member, you won't want to miss this opportunity to see and compare the new machines and materials "in the flesh."

So plan now to attend the best, most complete and most up-to-date exhibit ever staged for the woodworking industry. Remember the time and place—*Civic Auditorium, Grand Rapids, Mich., May 5, 6, 7, 1954.*

Manufacturers, attention: For details on remaining exhibit space, write, wire or phone today

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Wolverine Finishes Corp.
Wood and Wood Products
Woodworker
Woodworkers Reporter
Woodworking Digest

Yates-American Mach. Co.

spray painting equipment manufacturers. The 45-minute feature illustrates the four basic principles of spray finishing: proper equipment, control factors important to achieve highest quality results, spray painting techniques, and the necessary care, cleaning and maintenance of equipment.

Basic differences between suction and pressure feed guns and the atomization principle are illustrated in scenes taken at the DeVilbiss Co. spray painting school in Toledo. The film may be obtained for showings by writing directly to DeVilbiss Co., 300 Phillips Ave., Toledo 1, O.

Personnel Changes

W. J. Ulrich

W. J. ULRICH, the Carborundum Co.'s senior sales representative in the Detroit area, has been elected a vice-president of the company. He will continue his sales activities in the Detroit area. Also, F. W. Bonacker was elected assistant vice-president in charge of sales for the bonded products and grain division, and W. J. Kingsley was appointed sales manager for industrial product lines. Appointments to headquarters posts of the coated products division in Wheatfield, N. Y., were- John F. Claydon, director of the industrial sales branch; and H. P. Dales, industrial sales manager.

D. S. Gaarder

DONALD S. GAARDER has been appointed general manager of the Industrial Sales Division of Sherwin-Williams Co., Cleveland. He was promoted from the position of assistant general manager to succeed G. L. Hehl, veteran of more than 40 years who is now ill. Gaarder joined Sherwin-Williams in 1936.

Frank Purcell

FRANK PURCELL has joined the staff of the National Lumber Manufacturers Association as a fire insurance consulant and will work out of the Washington headquarters. He succeeds Kenneth Underwood who recently resigned to become assistant manager of the Insurance Rating Bureau of the District of Columbia. Purcell formerly was with Johnson and Higgins.

RAY C. REINHARTSEN has been general manager of Onsrud Machine named executive vice-president and Works, Chicago manufacturers of wood working and other machinery. He was promoted from vice-president and sales manager. George M. Campbell, secretary, was named a vice-president, according to R. F. Onsrud, president.

A. C. LUNDGREN has been elected a vice-president of the Thew Shovel Co., Lorain, 0. He has been a director of the company and director of purchases since 1946.

HENRY H. HOWARD has been elected a vice-president of Caterpillar Tractor Co. with principal responsibility of administering the recently created Engine Division. His 27 years with the company have been mostly in the sales management field.

E. M. ANDREWS, formerly manager of Capitol Plywood Co. of Sacramento, has joined the sales organization of Benjamin Levinson & Co. of Seattle, sales representatives for manufacturers of doors, hardwood and softwood plywoods and related products. His territory includes Colorado,

SPEEDS UNLIMITED

with the

BELL No. 70

Air Sash Clamp

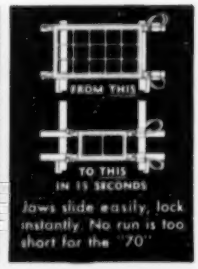
Speed . . . convenience . . . accuracy . . . are all combined in *this* air sash clamp.

The Bell No. 70 squeezes the work *with* smooth air power and *aligns each piece perfectly*.

Set-up changes take but a few seconds. Finished work is *consistently accurate*. The Bell No. 70 is used extensively for *all types of sash* . . . and it is equally well suited for clamping cupboard doors, screens, shutters and many other clamping operations.

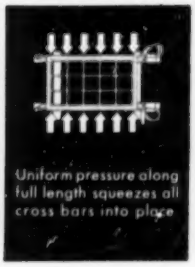
Write for complete details

With the "70's" self-squaring feature, the work can't be anything **but** accurate.



Jaws slide easily, lock instantly. No run is too short for the "70"

Slight toe pressure on a valve is all operator does to apply pressure



Uniform pressure along full length squeezes all cross bars into place

Bell WOODWORKING MACHINES

Visit us at Grand Rapids Trade Show May 5, 6 and 7. Spaces D-9-10-11 and D-14-15-16.

The BELL MACHINE COMPANY, 78 Jackson Drive, Oshkosh, Wis.

Wyoming, Eastern Montana, North and South Dakota and Nebraska.

J. A. Reidelbach

J. A. Reidelbach, structural engineer, has joined the engineering staff of Timber Engineering Co. Previously with the office of the Chief of Engineers, Washington, D. C., his work with Teco will be designing clear-span timber roof trusses for light and heavy construction work.

John M. Cook, vice-president and general manager of Behr-Manning Corp., has been elected a director of the parent Norton Co. Wallace L. Howe was elected vice-president in charge of research and development, and to the board of directors. Henry M. Elliot, first vice-president of Behr-Manning, retired as a Norton director. George N. Jeppson has been elected chairman of the Norton board and Milton P. Higgins president.

George D. Cockcroft has been promoted to the position of assistant sales manager of coated abrasives and related products in the Atlanta branch of Minnesota Mining & Manufacturing Co. His sales territory was previously in the vicinity of High Point, N. C.

Albert E. Boot has been appointed carbide service engineer for the Firth Sterling Inc. mid-eastern district. He was recently with Wendt-Sonis.

Harold A. Sample has joined the Carboloy Department of General Electric as a field sales representative and will work out of Springfield, Vt. He was formerly supervisor of value analysis at General Electric's aeronautic and ordnance systems department at Burlington, Vt.

William A. Bauer has been elected president and Charles N. Sumwalt, Jr., appointed executive vice-president of the Baker-Raulang Co., Cleveland. Bauer, board chairman since 1951, succeeds James W. Moran who has retired as president.

W. E. Hendricks has been named domestic sales manager for LeTourneau-Westinghouse Co., succeeding H. R. Powers who has resigned. Also, Lloyd Rager has been appointed sales promotion manager from assistant advertising manager.

Expansions

Great Neck Saw Mfrs., Inc., of Mineola, N. Y., has acquired the Buck Bros. Co. in Millbury, Mass., which consists of the Riverlin works plus the 60 acres of land and water rights surrounding the plant, for expansion purposes.

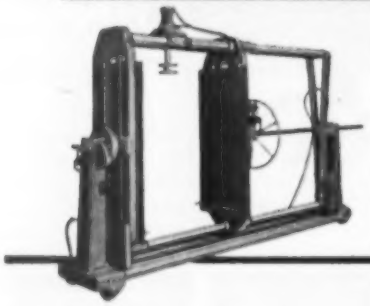
Deaths

C. V. Sweet

Carroll V. Sweet, 61, well known expert on expert on lumber manufacturing, grading and waste utilization at the U. S. Forest Products Laboratory, died suddenly Jan. 26 at his Madison, Wis., home. For 28 years he headed the laboratory's division of industrial investigations, a post that kept him in close contact with technical and economic problems of the wood-using industries. He directed research on logging, sawmilling, woodworking, the grading of lumber and other wood products, and the utilization of woods and mill wastes.

E. H. "Red" Cairns, sales representative since 1948 for the Wheland Co. in the Tennessee, Arkansas, Louisiana and Texas territories, died of a heart attack Jan. 16 at his Chattanooga, Tenn., home.

Clamps

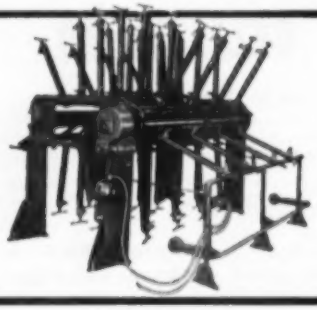


CASE CLAMPS

Massive tubular supports are mounted as fixed preloaded beams that will remain rigid and true, insuring accurate work under any load. No cast iron is used in any strain receiving member. Convenient controls and a powerful brake make operation easy and accurate. Write for Bulletin 11-J.

CLAMP CARRIERS

Black Clamp Carrieres are made in a practically unlimited range of sizes with respect to the number and width of sections and number, length and style of clamps. Carriers are made entirely of arc-welded and fabricated steel, providing an unbreakable frame and permitting flexibility of design. Write for Bulletin 11-K.



SASH AND FRAME CLAMPS

Black's two-way pneumatic clamps are mounted on a rigid, solid steel base with all controls conveniently grouped at the front. Valves and air supply lines are protected from damage by this base. Black clamps have been tested under production conditions, and proven to be fast, efficient and reliable. Write for Bulletin 11-M.

"If its gluing equipment—we have it"

THE BLACK BROTHERS CO., INC. 810 9th ST., MENDOTA, ILLINOIS

HIGH FREQUENCY GLUING

Continued from Page 24

manufacturers who are using high frequency in a line type production very satisfactorily and economically.

Another very important and economical field of application for high frequency gluing is found in case assembly and preliminary assembly procedures. There is edge banding, for instance. If your production requirements are great enough, high frequency is more economical than the resistance heater or the prolonged pressure type hot glue method.

In our own plant, the fact that we are a type of job shop operation, because of the many and various patterns which we have, has economically limited our approach to the use of high frequency for assembly operations. We have applied the principles of high frequency gluing to almost every reasonable assembly problem, but because of our comparatively limited unit volume, we have not been able to use it successfully.

We have, however, seen such operations as panel-to-frame, sub-case and case assembling that have produced great economies.

In general, we have covered the field of high frequency gluing and have more than implied that in most instances if there is enough unit volume high frequency is certainly the production department's answer to many gluing problems.

There remains the problem of maintenance. Many production people who have visited our plant to observe our unit always ask the same question: "What do you do in case of a breakdown?"

Our answer to that is that we have never had a complete breakdown. By that I mean that we have never had an instance when we could not determine the trouble. Certainly there is more maintenance than on the old manually operated clamp carrier, but then by the same token the rate of production is so very much higher that one can afford some downtime.

The best insurance, however, against excessive downtime is a millwright or maintenance man who is thoroughly familiar with the principles of electricity. Modern plants already employ such a man, for much present-day production equipment requires more maintenance skill than was necessary 25 or even 10 years ago. In general, with our units we have experienced a nominal amount of maintenance, certainly not excessive.

In conclusion, here are some suggestions which I think would enhance the economic position of high frequency gluing insofar as the furniture industry is concerned.

In the first place, a simpler power system might be designed. Secondly, we need a more dustproof power unit. At present, it takes a little more than the usual amount of machine cleaning attention to keep the unit in first-class operating condition.

Another improvement would involve a more automatic power and/or tuning control. Still another which is, of course, the perennial problem—a better and more versatile glue applied by means of an improved applicator.

Despite these suggestions, however, we at Hekman Furniture are very pleased with the economies that high frequency gluing has afforded us. We are eagerly awaiting further high frequency developments which we know are coming so that we may effect still further economies in our manufacturing processes.

Editor's Note.—*The foregoing paper was presented by the author at a recent meeting of the Great Lakes Section, Forest Products Research Society, in Grand Rapids, Mich.*

Replace **SLOW** *Manual Sanding*

With A Faster, Safer, Better Way . . .

Install This

NASH
No. 85
CHAIR BACK SANDER

Sanding Head Assembly, showing different contours handled.

BY sanding all shapes, sizes, and thicknesses of chair backs at a production rate of 18 to 55 feet per minute, you quickly save the cost of this NASH No. 85 Sander.

Maintains perfect parallelism of stock while sanding curved or serpentine stock, convex or concave surfaces up to 1½" thick and 6" high. Handles curvatures of 5" on an arc of 30 degrees—8" on a 90-degree arc.

ONLY ONE SET-UP required—adjusting feed rolls to thickness of stock, regulates pressure for desired stock removal. Eliminates danger of sanding over large sanding drum.

Sturdy construction, long life, and low upkeep assured by NASH—"Standard of the World" in wood-working machinery since 1890.

WRITE for Descriptive Bulletin and Specifications

J. M. NASH COMPANY
2359 N. 30th Street • Milwaukee 10, Wisconsin
Manufacturers of improved modern woodworking machinery including the famous Nash 50 Automatic Turning Sander.

BETTER FINISHING IDEAS

Continued from Page 29

handling a volume of air up to 100 c.f.m. Greater operating ease, better air cleaning, lower maintenance cost and longer life are claimed for the new AO-120 model.

New all-weather air outlets, designed to provide complete protection from the weather for the collector interior and yet permit the desirable vertical discharge of cleaned air, are a feature of the Kirk & Blum Mfg. Co.'s high-efficiency collectors. Illustrated herewith is a battery of 20 of these units recently installed at the Evendale plant of the Formica Co., Cincinnati, where they serve the machining department, including a variety of finishing machines.

The installation has a capacity of 123,500 cu. ft. of air per minute. By actual field test, it is said to have a collector efficiency of 99.1% by weight on material of which 1.7% by weight was less than 10 microns in size.

A new plastic overlay of phenolic resin and cellulose fibres, made in roll tape form for use in finishing exposed edges, is reported by the New Products Division of Crown Zellerbach Corp. Called "Crezon" edge banding, it is expected to meet the need for a practical, economical means of facing plywood edges and as an aid in cabinet finishing. An ordinary household iron could be used to apply it, but an inexpensive machine for doing the job is now under development.

Aetna Plywood & Veneer Co. has just announced a new lacquer finish for plywood, solid wood, furniture and other items requiring a natural color that will bring out the beauty of natural wood, brighten the color value and accentuate the grain pattern. Called "Shield," the new clear lacquer is said to be especially effective on today's popular light woods, has exceptional covering properties, can be brushed or sprayed on, and dries dust-free in 30 minutes.

New Laminate-Finishing Process

By means of a new plastic laminate-finishing process, unusually attractive, durable wood parts are being manufactured by Magna Products Co., Inc., Los Angeles, Calif. The subject parts comprise both solid wood and plywood constituents of furniture and cabinets for electronic musical instruments, amplifiers, recorders, public address systems, radio sets and phonographs.

As shown in the illustrations on page 29, fabrication is done with standard machine tools in a more or less conventional manner, and the parts may be sub-assembled prior to the laminate-finishing process.

The purpose of the laminate-finishing technique is to provide an unusually thick protective coating which will simultaneously be attractive and durable enough to withstand extensive handling.

The new process consists, briefly, of adhering transparent or translucent plastic sheets to color-coated wood surfaces so as to obtain essence-of-pearl, leatherette, and related blended-color effects.

Surfaces to be finished are first spray or brush coated with colored lacquers, pigmentation of which usually represents the essential color effects to be attained. Lacquers are used because they can be solvent-softened to increase adhesion of the plastic sheet coatings.

Many different types of transparent or translucent thermoplastic sheet materials could probably be adapted for use in connection with the laminate-finshing technique, although Magna engineers are using cellulose-acetate plastics, available in a variety of sheet or film forms.

Since they are both cellulosic materials, these sheets and colored lacquers are mutually soluble in a variety of organic liquids. However, the lacquer thinner combination of acetone and alcohol is considered the best solvent for subject applications because it can be used to thin primer coatings as well as in subsequent operations.

After each wood surface or assembly is lacquer-primed and dried, an appropriately trimmed plastic sheet is readied for adhesion by immersion in lacquer thinner. Solvent action of the thinner causes the sheet to become soft and tacky, and the sheet is ready for adhesion soon after it begins to wrinkle or sag.

Immediately thereafter, the sheet is taken from its thinner bath and stretched over the surface or surfaces that must be finished. Stretching can be done over fairly abrupt contours or corners, if necessary, and precautions are taken to make sure that no wrinkles or air spaces will be left to prevent the adhesion of wood and plastic surfaces.

Solvents in the stretched plastic sheet quickly soften lacquer primer coatings on wood or plywood surfaces, causing adhesion to take place at all points of contact as the lacquer and sheet surfaces are solidified by solvent evaporation.

Edges of the stretched sheet may be held in place with tacks or with fixture clamps until all solvent constituents have evaporated, after which a flawless coating with as much as 1/16 in. thickness can be attained.

Very few difficulties have thus far been experienced due to blisters, "alligatoring," and similar defects which could be anticipated in building up thick organic finish coatings by conventional methods in a short period of time—despite the fact that the *finished* articles must frequently be drilled, tapped, or otherwise machined for final assembly operations.

VALUING INCOMING LUMBER

Continued from Page 32

sheet reproduced here. All numbers at the beginning of the following paragraphs refer to column numbers shown in Fig. 3:

1. Date when kiln dried lumber is received into the kiln-dried inventory.
2. Source of the kiln-dried lumber. Use "C" for lumber dried in domestic kilns (or company owned kilns) and "F" for lumber dried in a "foreign" kiln.
3. Feet of lumber received into kiln-dried inventory.
4. Assume 10,000 ft. of lumber received, the air-dried value of which was $129.86 per M ft. The air-dried value of the lot was therefore $1298.60, and this is the amount to enter in Column 4.
5. In this column enter the standard cost of kiln-drying the kind and size of lumber in domestic kilns.
6. The amount to enter in Column 6 is the sum of the following charges: (a) Standard cost of loading out a car of air-dried rough lumber; (b) Standard cost of unloading the incoming car; (c) Switching charges out; (d) Switching charges in; (e) Amount of invoice received from the company which did the drying; (f) Standard cost from kiln-dried inventory to the mill; (g) Standard cost of rough-surfacing the lumber in question.

The last two items (6f and 6g) are included in the kiln-dried inventory value because that is the way selling price estimates *may* be made on finished wood parts. That is, the standard applied for yard and kiln handling may include these expenses.

While a question could be raised

as to the technical correctness of this method, it sometimes becomes a procedure so firmly entrenched by custom that there is more to lose by disturbing the method than by conceding a point on the matter. So long as the accounting department has the situation clearly in mind, no trouble should result from continuing the practice. The best place to record and total these charges is on the invoice.

7. Each month starts with the value of the inventory then on hand. Each day when kiln-dried lumber is received the sum of "value of footage received" and standard "kiln costs" is recorded under "inventory value" and immediately added to previous inventory balance. When lumber is dried in a foreign kiln, the sum of the "value received" and charges outlined in No. 6 is recorded in Column 7 and added to previous balance. Each day as lumber is cut (delivered to mill, Column 9), multiply the footage so cut by the unit cost per M ft. shown in Column 10.
8. These are running balances of the feet on hand, being adjusted each time a quantity is received or delivered to the mill for cutting.
9. Record in this column the date of deliveries to the mill and the feet delivered.
10. Divide the "inventory value" after each transaction by "feet on hand". This will provide running averages of actual cost per M ft.

The book containing the inventory sheets for air-dried and kiln-dried lumber is a subsidiary ledger of the general books of account. It is to be kept in balance with the control account in the general ledger exactly the same way that the accounts receivable subsidiary ledger is kept in balance with the accounts receivable control account in the general ledger. Whenever it is necessary to make an adjustment to the inventory, either an increase or decrease, the next vacant line on the inventory card is used.

This outline provides for a daily addition of lumber receipts, as well as a daily subtraction of lumber dried as reflected on the air-dried inventory sheet, and daily transactions affecting the kiln-dried inventory sheet.

A good many businesses procure their lumber from a number of small sawmills. Under such practice, it is recognized that the buyer, in most instances, must accept from the small mills the full product of the log, down through and including the No. 3 Common grade. It is recommended that under this buying procedure, a tabulation be made on a separate work sheet showing the various grades and species of lumber received during a weekly period.

This tabulation would show the individual receipts of both footage and money, separate by each grade and species. At the end of the week, the receipts may be totaled and posted to the air-dried inventory card in one lump sum, except that it should be posted separately by grades and species. From this point on, the preceding instructions may be followed.

No matter how efficient the perpetual inventory of lumber may be, a periodic check by means of actual count is desirable, depending on the volume of lumber receipts and other transactions affecting the perpetual inventory. Some plants make a physical count once every three months. It should be done at least twice a year, but quarterly is more desirable, especially if management is to receive an accurate monthly profit and loss statement.

DRY KILN DO'S AND DON'TS

Continued from Page 26

are mixed, there should be samples of each, quarter sawn lumber being slower to dry than plain sawn.

Sapwood dries faster than heart-

For BIG users or Small...
National Casein
has the right glue for your job
Tank Car
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Try us once, you'll stick with us—because National Casein glues stick for you
Our customers are steady customers for years because you get the right glue for your job when you want it—in quantities you prefer to buy—tank car, tank truck, drum—or package! Stocks of all but special formula glues are maintained at both Chicago and Riverton. Same-day service on most orders. Tank car and tank truck shipments take longer.
Contact National Casein for the right glue for: Exterior and interior plywoods... Machine edge gluing and hand work... Decorative plastics... Chip board manufacture... Laminating hardboards, veneer splicing, laminated rafters... Glues to pass all government specifications.
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Broad and Fulton Sts., Riverton, N. J.

wood, so use sample boards of both heartwood and sapwood and some of the heartwood and sapwood combined. Do not cut a sample closer than three feet to the end of the board except when drying short length stock. In that case, cut the sample from the center of the board.

In all cases, the sample board should be one that will represent the slowest drying lumber in the kiln charge.

It is suggested that when a kiln charge of one kind and thickness is run a sample board for each 5,000 bd. ft. is adequate. If the kiln capacity is 15,000 bd. ft. or less, there should not be less than three sample boards in the charge. This is so that the operator can have a check on the accuracy of his initial testing as well as the drying performance of the kiln. If the charge is mixed as to species of lumber or thicknesses, sample boards of the slowest drying species and greatest thicknesses should be used for the controlling boards.

The kiln operator should make frequent inspections of the lumber being dried. At times, this can be very unpleasant, but it is very important to observe the condition of the lumber while drying, particularly in the stage of drying before the fibre saturation point has been passed.

The Dry Kiln and Equipment

The modern kiln used in drying hardwood lumber is usually a forced circulation compartment type, equipped with controlling and recording apparatus.

In any type of kiln, the first consideration is the building. It may be constructed of various materials, but should be a tight building that allows controlled entering and leaving of air. Doors should be well fitted with felt or other types of liners to prevent leakage around the top, bottom and sides. They should also be well insulated to prevent heat loss and a consequent temperature and humidity differential throughout the length of the kiln. Walls and ceiling should be tight and well coated with an acid-resistant compound to prevent moisture absorption and leakage. All pipe openings should be filled with magnesia or asbestos compound which can be easily removed for pipe repair when necessary.

The controlling ventilators should be well fitted and in working condition at all times.

The steel work of the kiln should be kept painted with an acid-resistant compound to prevent rust and deterioration from the acids in the wood.

Piping should be kept in a leak-free condition at all times, well drained and trapped, but not painted. Exterior piping such as headers, feed lines, etc., should be covered to prevent unnecessary condensation and waste of steam.

The minimum controlling equipment should consist of recorder-controller with dry and wet bulbs, air or electrically operated automatic heat and spray valves, steam pressure regulators and gauges. There are numerous variations of the type and number of control bulbs; also automatic control of air inlets and outlets.

Every kiln operation should have

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Manufacturers of: Furniture & Industrial Hardwood Dimension stock—SOLID or GLUED, Rough or Semi-finish—S2S, S4S or to pattern, moulded, tenoned or square trimmed ends.
ALL ORDERS CAREFULLY MANUFACTURED TO YOUR SPECIFICATIONS

"You don't wait till you're thirsty to dig a well!" *—Old Chinese proverb*

Let 'em know you're in business to stay.
Use a regular "card" in this department every month and you'll get your share of available dimension orders.
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as minimum testing equipment a test oven (an electrically heated oven for baking test discs), gram scales for weighing test discs, platform scales graduated in pounds and hundredths of a pound for weighing sample boards, and hygrometers (dry and wet bulb thermometers).

Troubles In Operation

Drying of lumber should be a continual process with the greatest amount of moisture removed at the point of highest moisture content and a slowing of removal as the moisture content becomes lower. Failure to obtain maximum drying, particularly in green lumber, is found through small daily losses or possibly an increase of moisture content. Signs of trouble of this sort are:

Excessive use of the spray;

Excessive water running from under kiln doors;

Formation of mold on the lumber.

The causes of this trouble are:

Controller out of calibration;

Excessive ventilation;

Leak in heating system;

Leak through spray valve.

Another condition which causes excessive moisture in the kiln is that of too high steam pressure. The kiln and equipment may be in good condition insofar as the controller, ventilation, valves, and heating system are concerned, but still fail to give maximum drying. The sign of this is that the heating system either does not function at all or at infrequent intervals, while the spray system operates continuously or at such intervals that the effect is of continuous operation.

The cause is the simple fact that the latent heat of the steam released through the spray is so great that it usurps the function of the heating system. This is noticeable when attempting to dry lumber which by schedule should be dried at low dry bulb temperatures with wet bulb depressions of 4, 6, 8 or 10 degrees. Usually the dry bulb temperature will over-run the setting or desired temperature; the moisture content loss day by day will be small and often water will stand on the floor of the kiln. The kiln operator frequently has to resort to the dangerous practice of increasing the dry bulb temperature, lowering the equilibrium moisture content and hoping that he will not have excessive case hardening and honeycombed lumber.

When this type of condition exists, a separate low pressure (1½ to 5 lb.) system for the spray system should be installed and used. The pressure should be low enough that the operation of the coils is not affected by the spray, but high enough to give

WHERE TO BUY

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Furniture City Dowel Co.
503 Grandville Ave.
Grand Rapids 3, Mich.

Grand Rapids Dowel Works
701 W. Burton St.
Grand Rapids, Mich.

H. G. Winter & Son
Kingfield, Me.

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BRUSH DOWELS & BLOCKS

Galewood, Inc.
2177 Scranton Road
Cleveland 13, Ohio

•

CUSTOM TURNINGS

Amyx Manufacturing Co.
648 Missouri Ave.
West Plains, Mo.

Bendix Mouldings, Inc.
192 Lexington Ave.
New York 16, N. Y.

•

DOWEL RODS & PINS

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Norway, Me.

Furniture City Dowel Co.
503 Grandville Ave.
Grand Rapids 3, Mich.

Grand Rapids Dowel Works
701 W. Burton St.
Grand Rapids, Mich.

Saunders Brothers
Westbrook, Me.

•

EXTERIOR LAMP POSTS

A. F. Schwerd Mfg. Co.
3215 McClure Ave.
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HANDLES

Allen-Rogers Corp.
Laconia, N. H.

Boss Whipple Mfg. Co.
Fourth Ave. & South St.
Union City, Pa.

C. B. Cummings & Sons Co.
Norway, Me.

The Stratton Co.
Stratton, Me.

H. G. Winter & Son
Kingfield, Me.

•

IMPREGNATED WOOD SPECIALTIES

Paramount Oilless Bearing Co. Inc.
99 Hope Ave.
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KNOBS—WOOD

Allen-Rogers Corp.
Laconia, N. H.

The Stratton Co.
Stratton, Me.

H. G. Winter & Son
Kingfield, Me.

•

LARGE WOOD TURNINGS (FURNITURE)

Carrick Turning Works
812 Millis St.
High Point, N. C.

•

MOULDING—CARVED TURNED & EMBOSSED

Bendix Mouldings, Inc.
192 Lexington Ave.
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Forsyth Mfg. Co.
2246 W. Kinzie
Chicago 12, Ill.

•

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•

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Galewood, Inc.
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Cleveland 13, Ohio

H. G. Winter & Son
Kingfield, Me.

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TOY PARTS (Turned & Shaped)

Bogert & Hopper, Inc.
101 W. 31st St.
New York 1, N. Y.

C. B. Cummings & Sons Co.
Norway, Me.

Galewood, Inc.
2177 Scranton Road
Cleveland 13, Ohio

A. F. Walker & Son Inc.
New Ipswich, N. H.

H. G. Winter & Son
Kingfield, Me.

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Allen-Rogers Corp.
Laconia, N. H.

Bendix Mouldings, Inc.
192 Lexington Ave.
New York 16, N. Y.

Levenson Woodturning & Mfg. Co.
3755 S. Broadway Place
Los Angeles 7, Calif.

Paramount Oilless Bearing Co. Inc.
99 Hope Ave.
Worcester 3, Mass.

Stanton Novelty Co. Inc.
Lake Ozark, Mo.

Stowell Silk Spool Co.
Bryant Pond, Me.

The Stratton Co.
Stratton, Me.

A. F. Walker & Son Inc.
New Ipswich, N. H.

H. G. Winter & Son
Kingfield, Me.

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sufficient volume for proper humidification. The writer has found a very satisfactory solution in having a dual supply, using coil pressure for initial steaming, bringing the kiln up to temperature (wet bulb and dry) fairly rapidly, then switching the spray to low pressure for the drying process.

The opposite of the condition just discussed is that of over-drying. The results are seen in case hardening, honeycomb, and collapse. Aside from using a drying schedule too severe for the lumber, the causes of this condition can be laid to failure to select high moisture content samples. A small percentage of high moisture content lumber mixed with dryer lumber will frequently be seriously damaged while the larger percentage of lower moisture content lumber will be perfectly dried. The solution is more careful sorting and selection of stock and kiln samples.

Mechanical causes of over-drying can usually be found in these points:

Controller out of calibration.

Leak through control valve of heating system (over-run of dry bulb temperature) with valve remaining closed.

Uneven temperatures throughout length of kiln with control bulbs in coolest position.

Spray system not working properly, either because controller is out of calibration or because of failure to maintain correct wet bulb temperature. If the latter, replace the wick on wet bulb to insure 100% absorption, no hard or dry spots where wick comes in contact with bulb. See that water supply to wick is adequate.

Slow rate of drying (after fibre saturation point has been passed).

Drying schedule too low for type and thickness of lumber—E.M.C. setting too high.

These are conditions which can be corrected by reference to and use of approved schedules plus the use of good judgment on the part of the operator in developing variations of schedules depending upon his knowledge of the lumber being dried and the condition of his kiln.

The kiln operator should at all times know, from personal observation of the recorder, controller or daily testing, examination of the lumber being dried and review of past drying, whether to increase his rate of drying through adjustment of his temperature and humidity or E. M. C. scheduling. Schedules as recommended are based on a general average of species, and are of conservative nature.

Variations within a species, particularly oaks, are roughly in whether virgin type or second growth type timber is being dried, also whether the timber is highland or lowland growth. There are variations in the subdivisions of the various species; also the effects of air seasoning, had the lumber dried with heavy season checking (too rapid) or with a moldy stained appearance (too slow).

All of these and more factors affect drying, and the kiln operator should observe the stock carefully and schedule his drying to conform to his observations and the end-use of the lumber.

The mechanical or physical equipment can be kept in good condition, but if the judgment of the operator is not good, the results of the drying can be very bad.

Veneer Drying Rates Bulletin

A fundamental study of "Drying Rates of Thin Sections of Wood at High Temperatures" casts much light on the drying mechanism involved in the usual veneer drying processes. It's contained in Bulletin No. 59, Yale School of Forestry, New Haven, Conn. Written by Herbert O. Fleischer, the 86-page bulletin is available at $1.50 a copy. It is expected that the mathematical methods outlined in this study may be applied to practical problems of veneer drying rates, such as the development of drying rate control charts for commercial veneer drying operations.

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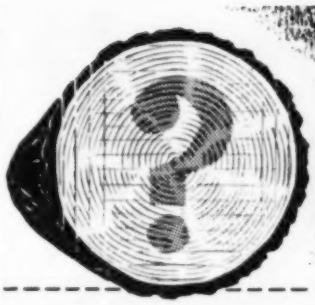

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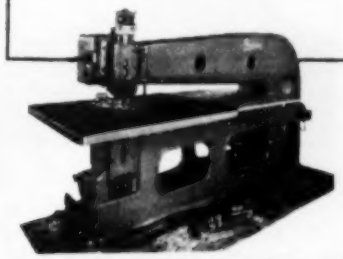

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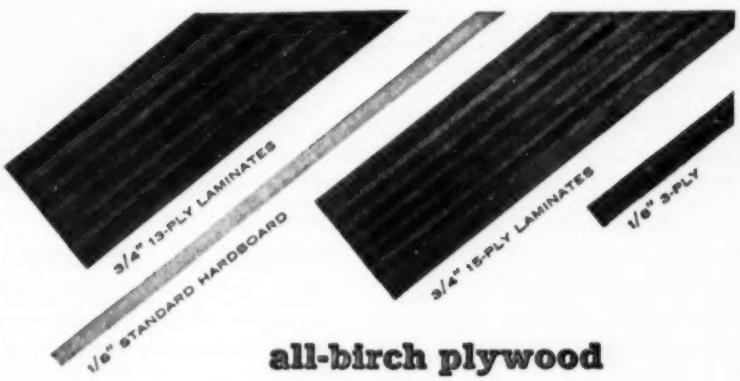

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W. R. "Dick" Warner has served the Southern Lumber Co., Warren, Ark., as general manager since early in 1940. Under his leadership, the company has doubled its fee-owned acreage in keeping with its program aimed at ultimate attainment of a sustained yield of raw materials.

Among Dick's major contributions toward the advancement of his industry as well as his company was his pioneering of the pneumatic log debarker with the first installation in the South of a unit imported from Sweden in 1952. His masterful description of the project, which involved an investment of around $110,000 for debarking, chipping, handling and related equipment, was a feature of the June 1953 issue of Wood & Wood Products. In it, he not only told of his long experience in the field of mechanical debarking of pulpwood dating back to 1937, but gave intimate facts and figures on costs and other details of great importance to others contemplating similar operations.

"I believe," he said in referring to this major step in his company's program to get more complete utilization of its forest products, "that the lumber industry can do a wonderful forestry job through better utilization of sawmill waste. While we at Southern have been more or less successful in our efforts to this end, we have barely scratched the surface."

Under Dick Warner's progressive management, great strides have been made in modernization and mechanization of the plant and woods operations of the company, and this progress is continuing. As chairman of the Southern Pine Association's Committee on Mechanical Efficiency, he is showing the way toward these important objectives among his fellow lumber producers throughout the South.

Mr. Warner is a native of the northern peninsula of Michigan. He moved to Southern Lumber Co. from Cloquet, Minn., after a long association with various Weyerhaeuser interests. He is a graduate electrical engineer and is experienced in every phase of the timber, logging and lumber manufacturing business.

With all of his business activities, Dick still finds time to serve as president of the "Keep Arkansas Green" Association, as director of S.P.A. and of the Arkansas Wood Products Association, and is active in various other wood industry organizations. In Warren, Ark., he is a director of the Y.M.C.A., of the local hospital and of a local bank, as well as a member of the Chamber of Commerce and other civic groups. He is, in addition, an enthusiastic sportsman, hunting being his favorite.

TRUMAN W. COLLINS

Born to the lumber business, Truman W. Collins possesses a remarkable ability to analyze forestry and forest problems and to abstract ideas from those around him. Today, from his offices in Portland, Ore., he directs the operations of several lumber mills and the management of some of the West's finest forestlands—made that way through Truman Collins' intensive, businesslike forestry.

It was three generations ago that the Collins name first became associated with the American lumber industry, first in Pennsylvania, then later in Ostrander, Wash. Young Collins grew up in the lumber industry. He studied the ways of logging and log transportation in the forests of Southern Washington.

His academic education was obtained at Willamette University, in Salem, Ore., from which he graduated in 1922. In 1924, he received his Master's Degree in Business Administration from Harvard and returned to the West and the forest.

Today he heads a vast network of lumbering operations in the West, though still retaining an excellent reproducing forest in Pennsylvania—one with an outstanding growth rate. He is president of the Collins Pine Co., the Fremont Sawmill Co., the Almanor Railroad Co., the Ochoco Lumber Co. and Ostrander Construction Co.

He holds directorships in the United States National Bank and the Standard Insurance Co., is a trustee of Willamette University, a past president of the Pacific Logging Congress, and was treasurer of the Western Pine Association for five years. He was chairman of the latter's forest conservation committee for the past three years, and has continued as a member of that group which co-ordinates the industry's forest programs in the far-flung Western Pine region embracing all or parts of 12 western states.

Mr. Collins' forestlands are considered among the finest examples of the results of forest management in the West. He sets his main objective to make his net forest growth his gross forest growth – to eliminate losses through salvage logging. The loss rate on his woodlands is remarkably below normal. Pin-point planning, intensive forestry and precision business methods are his strong points.

He is a strong backer of tree farming, and his Western Pine Tree Farm is one of the best in the region. One of the most respected and influential men in the industry, he is this year celebrating the Collins family's 100th anniversary in the lumber business. To those of his many strong friends everywhere, Wood & Wood Products adds its congratulations!

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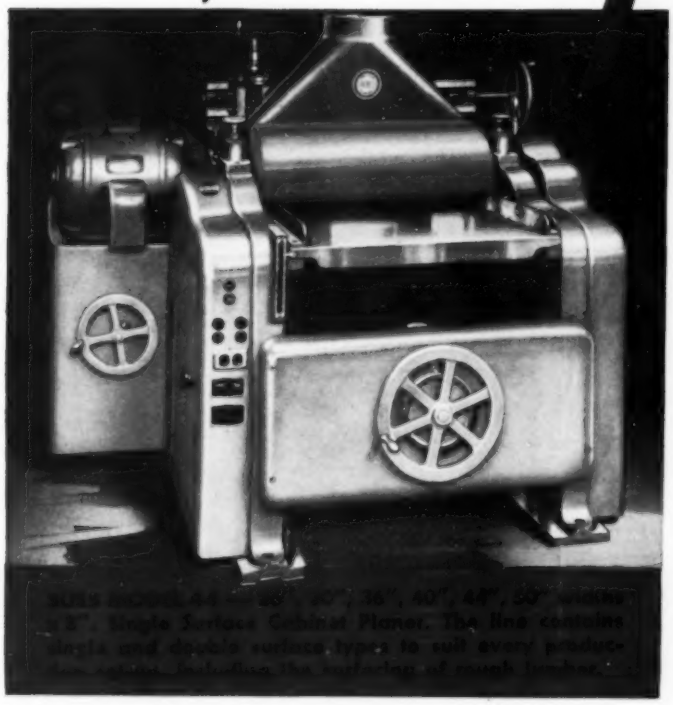

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